June 2010 • Volume 109 • Issue 3

Wisconsin Medical Journal

Official publication of the Wisconsin Medical Society

Kids' healthy eating habits grow in the garden

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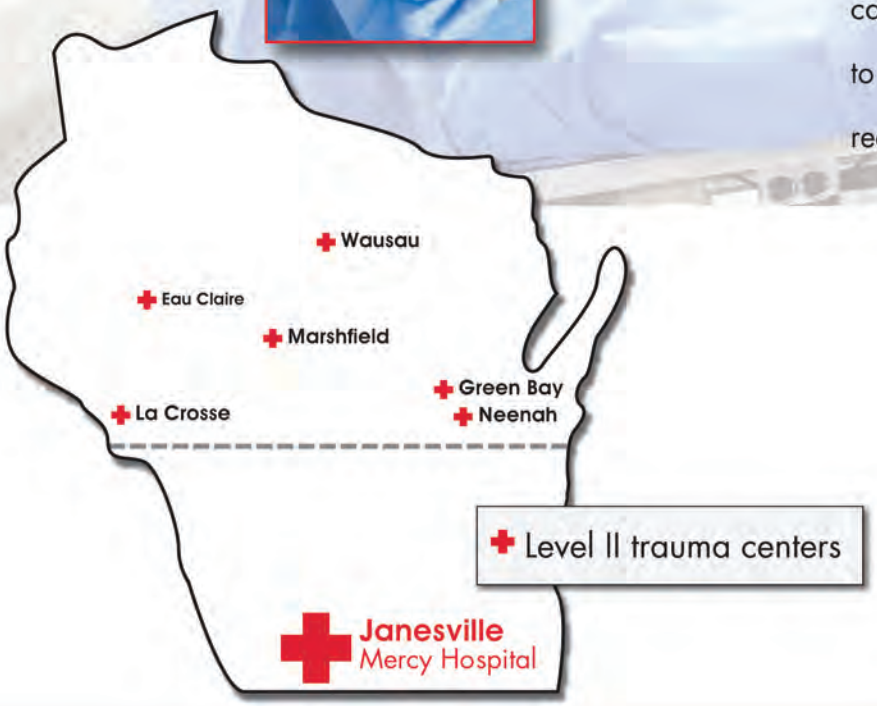

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COVER THEME
Kids' healthy eating habits grow in the garden

There's no question eating vegetables is part of a healthy diet. But getting kids to eat them isn't always easy. This issue of the Journal *features findings from a study that found a school-wide gardening program helped lead to an increase in vegetable consumption among school-age youth.*

Cover design by Mary Kay Adams-Edgette.

The mission of the *Wisconsin Medical Journal* is to provide a vehicle for professional communication and continuing education of Wisconsin physicians.

The *Wisconsin Medical Journal* (the *Journal*) (ISSN 1098-1861) is the official publication of the Wisconsin Medical Society and is devoted to the interests of the medical profession and health care in Wisconsin. The managing editor is responsible for overseeing the production, business operation and contents of the *Journal*. The editorial board, chaired by the medical editor, solicits and peer reviews all scientific articles; it does not screen public health, socioeconomic, or organizational articles. Although letters to the editor are reviewed by the medical editor, all signed expressions of opinion belong to the author(s) for which neither the *Journal* nor the Wisconsin Medical Society take responsibility. The *Journal* is indexed in Index Medicus, Hospital Literature Index, and Cambridge Scientific Abstracts.

Send manuscripts to the *Wisconsin Medical Journal*, 330 E Lakeside St, Madison, WI 53715. Instructions to authors are available at the Wisconsin Medical Society Web site: www.wisconsinmedicalsociety.org, call 866.442.3800, or e-mail wmj@wismed.org.

SUBSCRIPTION RATES
Members: included in membership dues. Non-members: $99. Current year single copies, $12 each. Previous years single copies, when available, $10 each.

Periodical postage paid in Madison, Wis, and additional mailing offices.

Published every other month, beginning in February.
Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized August 7, 1918. Address all correspondence to the *Wisconsin Medical Journal*, PO Box 1109, Madison, WI 53701. Street address: 330 E Lakeside St, Madison, WI 53715; e-mail: WMJ@wismed.org

POSTMASTER
Send address changes to: *Wisconsin Medical Journal*, PO Box 1109, Madison, WI 53701

ISSN 1098-1861
Established 1903

Volume 109 • Issue 3

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In Remembrance

The following physicians passed away between October 2009 and April 2010.

Gerald J. Derus, MD, 83, of Dana Point, Calif; University of Wisconsin Medical School, Madison; passed away Wednesday, September 23, 2009.

Edward A. Birge, MD, 97, of Brookfield, Wis; Johns Hopkins University School of Medicine, Baltimore, MD; passed away November 21, 2009.

Eugene E. Eckstam, MD, 91, of Bloomington, Minn; University of Wisconsin Medical School, Madison; passed away April 9, 2010.

Marguerite Elliott, DO, 61, of Madison, Wis; Michigan State University College of Osteopathic, East Lansing, Mich; passed away February 15, 2010.

Leslie L. Fai, MD, 90, of Kenosha, Wis; Orvosi Fakultas Tudomanyegyetern, Budapest, Hungary; passed away September 12, 2009.

Gordon M. Garnett, MD, 86, of Madison, Wis; University of Wisconsin Medical School, Madison; passed away December 13, 2009.

John Francis Holmes, MD, 97, of Milton, Wis; Loma Linda University School of Medicine, Los Angeles, Calif; passed away February 28, 2010.

Anthony Jurisic, MD, 90, of Saint Petersburg, Russia; Medicinski Fakultet Sveučilišta u Zagrebu; passed away October 16, 2009.

Susan Lee Kaehler, MD, 58, of Milwaukee, Wis; University of Grenoble, Isère, France; passed away January 28, 2010.

K Paul Katayama, MD, 74, of Waukesha, Wis; Faculty of Medicine University of Tokyo, Japan; passed away February 20, 2010.

Sean P. Keane, MD, 73, of Milwaukee, Wis; National University of Ireland; passed away November 22, 2009.

Walter M. Kelley, MD, 88, of Eau Claire, Wis; University of Wisconsin Medical School, Madison; passed away September 8, 2009.

Fred H. Koenecke, Jr, MD, 85, of Richland Center, Wis; University of Minnesota Medical School, Minneapolis, Minn; passed away November 14, 2009.

Bernard Carl Korbitz, MD, 74, of Omaha, Neb; University of Wisconsin Medical School, Madison; passed away October 29, 2009.

John Frederick Kreul, MD, 63, of Madison, Wis; Loyola University Stritch School of Medicine, Maywood, Ill; passed away November 15, 2009.

John C. Linn, MD, 89, of Shorewood, Wis; Medical College of Wisconsin, Milwaukee; passed away November 13, 2009.

Gordon V. Marlow, MD, 89, of Madison, Wis; University of Wisconsin Medical School, Madison; passed away October 28, 2009.

Donald Hugh McDonald, MD, 87, of Winneconne, Wis; Medical College of Wisconsin, Milwaukee; passed away October 31, 2009.

Marion Estabrooks Murphy, MD, 86, of Madison, Wis; University of Wisconsin Medical School, Madison; passed away October 12, 2009.

Stanley J. Nuland, MD, 79, of Brookfield, Wis; University of Wisconsin Medical School, Madison; passed away March 25, 2010.

Carroll Robert Olson, MD, 90, of Crystal Lake, Ill; Medical College of Wisconsin, Milwaukee; passed away November 4, 2009.

Harold Erwin Oppert, MD, 88, of Viroqua, Wis; University of Wisconsin Medical School, Madison; passed away September 10, 2009.

Hisham A. Osman, MD, 45, of Spring Green, Wis; Abbasis Faculty Medicine University Ein Shams, Cairo; passed away March 3, 2010.

Owen Royce, Jr, MD, 98, of Mequon, Wis; Tulane University School of Medicine, New Orleans, La; passed away December 4, 2009.

Ronald C. Rudy, MD, 76, of Middleton, Wis; Medical College of Wisconsin, Milwaukee; passed away January 30, 2010.

Roger L. Ruehl, MD, 85, of Brookfield, Wis; Medical College of Wisconsin, Milwaukee, passed away December 11, 2009.

John Gregory Russo, MD, 97, of Kaukauna, Wis; Loyola University Stritch School of Medicine, Maywood, Ill; passed away November 14, 2009.

Benjamin T. Schmidt, MD, 48, of Waterloo, Wis; Medical College of Wisconsin, Milwaukee; passed away September 7, 2009.

Duard Lee Walker, MD, 88, of Madison, Wis; University of California School of Medicine, San Francisco, Calif; passed away September 14, 2009.

Robert E. Wilson, MD, 76, of Kenosha, Wis; Ohio State University College of Medicine, Columbus, Ohio; passed away September 25, 2009.

Janet Adele Wilson, MD, 74, of Tulsa, OK; Case Western Reserve University School of Medicine, Cleveland, Ohio; passed away November 25, 2009.

Richard C. Wixson, MD, 94, of Madison, Wis; University of Michigan Medical School, Ann Arbor, Mich; passed away November 8, 2009.

George J. Worm, MD, 93, of Milwaukee, Wis; Medical College of Wisconsin, Milwaukee; passed away January 15, 2010.

The worst doctor in the worst clinic

John J. Frey, III, MD
Medical Editor, Wisconsin Medical Journal

A double distortion lies at the heart of paying for primary care: Clinicians are paid for throughput, charges and piecework—sometimes called efficiency—and are increasingly being "paid" for quality. The piecework creates a process—high volume, high cost, and high charges—that is antithetical to the proper role of primary care in the process of care.

Primary care providers need to spend adequate time and effort on the management of multiple complex problems of individual patients using clinical judgment that is both cost effective and evidence based. They also should target higher risk groups within a practice population that need more attention and creative strategies for care. Doing less pays less under the current system, even if less, in many cases, is better for patients. The term "production" used by health systems to pay primary care doctors is a wonderful metaphor for what medicine feels like. Charlie Chaplin in the factory scene in *Modern Times* captures the feeling better than anyone could describe it.

The term quality is the second distortion—at least how it is used in US health care as determined by insurance companies and the National Committee for Health Care Quality (NCQA), the self-appointed guardian of quality. The current term used is "pay-for-performance" and conjures images of dogs being rewarded with treats for jumping through hoops in the circus. No one, of course, argues against quality, but a lot of clinicians argue about what quality means and how it should be measured. Linking quality measures to payment raises a whole raft of issues for primary care when those payments are also linked to reimbursement for billable services and don't take a practice population into consideration.

A study of pay-for-performance comparing physician attitudes between family doctors in California and general practitioners (GPs) in Britain showed that the British GPs felt better about the process and its subsequent effect on their income compared to the California family doctors who felt overburdened and under resourced. This should come as no surprise. In England, GPs have a base average salary of 100,000 pounds (roughly $180,000) upon which pays for quality can be added but not subtracted. The results are a much better achievement of quality improvement and an increase in compensation of the British GPs compared to the US doctors who, depending on meeting quality grades, put up to one-third of their basic income at risk. In addition, British GPs use quality measures derived from their own practices while California physicians were judged by external criteria, mostly from the NCQA.

I have been in practice at a residency teaching clinic for almost 17 years, a clinic whose population, in contrast to other practices in our health system, is ethnically diverse with disproportionately lower incomes, with a high percentage of Medicaid, permanently disabled and uninsured patients. Every month I get an individual report on how patients of mine meet NCQA measures of "control" of diabetes and most months since this started, I have ranked dead last and our clinic ranks last of all the clinics in the system. So, by externally derived quality measures, after 40 years of being a doctor—at least for diabetes—I have been deemed the worst doctor in the worst clinic.

As I go through my list, I recognize names of patients who are uninsured or, because of high deductibles or co-pays, are effectively uninsured who have enormous economic and social burdens, who struggle with paying to come to our clinic, spreading their medications over longer periods of time than they should because they need to buy food and pay rent. My clinic colleagues and I have looked at our diabetes patients and found that, despite these challenges, we are improving their HgbA1c levels but not making the magic "7.0 or less" benchmark. If we were British GPs, we would be rewarded for progress, but because we are in the United

States, we are punished for not meeting externally driven "standards." The quality system in the US is pass-fail, not improvement.

Higher risk practices, just like higher risk school systems, need more and different resources than those at lower risk. Research repeatedly supports the view that more resources improve care in higher need primary care. In the British National Health Service (NHS), community nurses, paid by the NHS, work with each practice to broaden care by doing home visits to patients who are missing care and do care management in the community, not simply in the office. Higher need communities get more nurses than those with less need. In our practice, we get supported for office-based staff at the same rate or less than practices with less demanding populations. But the current production driven reward system assures that practices with patients who have socioeconomic as well as medically complex problems will have less to invest in care. Disparities in health outcomes in society often mirror the disparities in practice support for clinics trying to care for socioeconomically burdened communities, a concept first identified almost 40 years ago, which stated that "the availability of good medical care tends to vary inversely with the need for it in the population served."

I realize I am not the worst doctor and I know my clinic is not the worst practice—we have been providing consistently high quality care for over 35 years to our community. We are all—whether an "A" doctor or "F" doctor—locked into narrow definitions of quality that are often poorly tested. For example, a recent study demonstrated the risk of increased mortality for type 2 diabetic patients whose HgbA1C is driven below the NCQA goal of "less than 7.0." This study was interrupted before it was completed because of the danger to patients who were treated aggressively. But the "standards" for the diabetes report card hasn't changed. Even if loosening the standards of quality might actually save patients lives', it doesn't seem to matter. Pushing primary care clinicians to put our patients at risk to achieve increased pay-for-performance goals presents an intolerable conflict of interest.

Any attempt to improve the morale and quality in primary care requires changing not only *how much* primary care providers are paid but, more importantly, *how* they are paid. Large groups or collaboratives and insurance companies can find ways to experiment in primary care by paying for populations, which would let the practices concentrate more on innovation than on throughput. An experiment at Group Health in Seattle, Washington, showed that investment in primary care that is not production driven can lower costs, free up more time for patients, and increases both provider and patient satisfaction.

Why not try giving primary care doctors a dependable base income and reward improvement? Ask them to improve the health of their overall practice population rather than meet arbitrary and evidence-poor "benchmarks." Push collaboration with many different health professionals who can divide both the work and the reward for doing better. Discovering new ways of delivering care that would not pit the "high producers" against the rest, and concentrate on health not billings. It would be a better world for doctors and patients alike. It is not too late to try.

WISCONSIN MEDICAL JOURNAL

Examining the Effect of Gardening on Vegetable Consumption Among Youth in Kindergarten through Fifth Grade

William Wright, BA; Laura Rowell, RD, MBA

ABSTRACT

Introduction: Funded by a grant from the makers of Hidden Valley® Salad Dressings the objective of this study was to determine if the introduction of a school-wide gardening program would affect overall vegetable consumption among elementary school youth. The study's setting was Elmore Elementary, Green Bay, Wisconsin, 1 of 27 elementary schools in the Green Bay Area Public School District.

Program Description: The school's salad bar was used to measure changes in vegetable consumption during school lunch. School food service staff recorded the weight of vegetables selected from the salad bar. The daily total weight of vegetables selected from the salad bar was divided by the number of students purchasing lunch that day. The resulting factor (average grams per child) was charted to monitor changes in consumption. After approximately 10 weeks of data collection, a gardening program was introduced. Food service staff continued to record weights, allowing for a quantitative analysis of the group's consumption prior to, during, and postintervention.

Results: Selection of vegetables from the salad bar decreased (r=-.403) during the first 2½ months of the study. During the intervention period, selection increased (r =.3940) and continued to show a slight rise postintervention (r =.2037).

Conclusion: The negative trend in daily salad bar selection before intervention was reversed, and a steady increase per day was seen during the intervention period. This suggests that intervention helped increase consumption rates per student. Consumption continued to increase postintervention, although at a lesser rate than during intervention. The average daily value also showed a slight increase between intervention and postintervention. This suggests that gardening intervention lessons and activities were retained by the students after the lessons and activities were completed.

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INTRODUCTION

Obesity rates in the United States have increased dramatically over the last 30 years, and obesity is now epidemic in the United States. Data for 2003-2004 and 2005-2006 indicated that approximately two-thirds of US adults and one-fifth of US children were either obese (defined for adults as having a body mass index [BMI] ≥30.0) or overweight (defined for adults as BMI of 25.0-29.9 and for children as at or above the 95th percentile of the sex-specific BMI for age-growth charts).[1,2] States and communities are responding to the US obesity epidemic by working to create environments that support healthy eating and active living[3,4] and by giving public health practitioners and policymakers an opportunity to learn from community-based obesity prevention efforts. The Green Bay Area Public School District (GBAPSD) Food Service Department's transformation has been led by key organizations that worked together to create change. They include the University of Wisconsin–Green Bay Dietetics Department, Brown County UW-Extension, and Brown County Healthy Weight Coalition for Youth. These organizations have partnered to implement nutrition education and healthy eating habits and assisted in improving the National School Breakfast Program and National School Lunch Program. The mission statement of the GBAPSD Food Service Department states that it is "committed to providing all children with high quality meals that are safe and nutritious, following the regulations of the USDA – National School Lunch Program. Our intent is to provide all students with the knowledge and skills necessary to make life-long healthy and enjoyable food choices."

The GBAPSD Food Service Department has worked

hard to increase fruit and vegetable choices within the National School Breakfast and Lunch Programs and to eliminate non-nutritious food choices such as french fries, candy bars, and soda sold in its cafeterias. Additionally, the 2008 Local Wellness Policy requires that all ala carte and vending sales in the GBAPSD comply with a 35% - 10% - 35% ruling whereby total fat must be <35% of recommended daily value (based on a 2000-calorie diet), saturated fat must be <10% of the recommended daily value, and sugar must be <35% of the total product's weight.

PROGRAM DESCRIPTION

The Gardens Reaching Our World (GROW) project was a collaboration between Brown County UW-Extension's Community Garden Program and Green Bay Area Public Schools Food Service Department. Assistance was also provided by students enrolled in the University of Wisconsin–Green Bay Dietetics Program. The project's setting was Elmore Elementary School, which has a student population of 275. Forty of those students are in the half-day prekindergarten program and do not participate in the school lunch program. Of the 234 kindergarten through 5th (K-5) grade students, 50.55% are eligible for the free and reduced lunch program, which puts Elmore near the median for elementary schools in the GBAPSD. Twelve of the district's elementary schools have a higher percentage and 14 have a lower percentage of students eligible for free or reduced lunch. The ethnic breakdown of students in grades K-5 is as follows: 8 American Indian or Alaskan Native, 13 Asian/Pacific Islander, 20 black or African American, 12 Hispanic or Latino including Mexican, 181 white/Caucasian.

Through a "Love Your Veggies" grant from Hidden Valley, a salad bar with a child-friendly serving height of 69 cm was purchased and installed in the school cafeteria. During the early weeks of the 2008-2009 school year and prior to the addition of the salad bar, students from the dietetic program at UW-Green Bay visited each classroom for 30 minutes on 2 separate occasions. During the first visit, a lesson focusing on the importance of fruits and vegetables was presented. The second visit focused on salad bar etiquette and food safety.

The salad bar was presented to the students on October 16, 2008, during a "pep rally" that included veggie songs, veggie riddles, and brief talks by the principal and the food service department about the addition of the salad bar to the school cafeteria. It became operational the next day with a limited number of selections available the first few days.

The salad bar was offered as part of the lunch program, allowing access by all students who were served lunch on any particular day. It was positioned so that students passed it while they waited in line for their hot entrée, dessert and milk. Lettuce was always available on the salad bar while other vegetable selections varied from day to day. From previous experience, food service staff knew that carrots were a favorite of the students and carrots were offered most days (82 of 137). Students were able to select what they wanted from the salad bar, or nothing.

To develop a baseline prior to implementing the intervention, food service staff recorded the total weights of each vegetable placed on the salad bar, as well as the amount remaining at the end of the lunch period. The total weight of all vegetables selected that day was divided by the number of students who purchased lunch. This factor, average grams per student, was charted over the course of the project. Plate waste studies were completed twice to determine what percentage of food selected actually was being consumed.

The gardening intervention was introduced on January 12, 2009, approximately 10 weeks (45 actual school days) after the salad bar was implemented. Due to the limited length of the growing season in Green Bay, the gardening portion of this project was conducted by using a microfarm. The microfarm is a portable growing station that contains a light source to stimulate plant growth and flats containing soilless planting medium. Using the microfarm, students grew microgreens, the tender young shoots of vegetable plants. The varieties selected were kohlrabi, carrots, mustard greens, and sunflowers. The planting lesson connected the children's previous experiences with the school salad bar to the concept of growing their own salads. The students then planted the seeds and watered and cared for the plants. At the end of 3 weeks, the teacher and students harvested the microgreens using scissors. After washing the microgreens, students sampled each type of microgreen individually to experience the taste. The microgreens were then combined to create a salad that was shared by the class. The gardening intervention concluded May 8, lasting a total of 73 school days. During this period, each classroom participated in gardening for 3 weeks, although there was a short gap in the gardening project due to spring break. Food service staff continued to collect and record daily salad bar data during and after the intervention period. Throughout the project, periodic checks were made to count the number of students utilizing the salad bar. This number was divided by the number of students who purchased lunch that day so

Table 1. Average Quantity of Vegetables Selected

	Entire Study	Preintervention	Intervention	Postintervention
No. of Days	137	45	73	19
Daily Average (grams/student)	18.30	21.65	16.67	16.85
High (grams/student)	40.55	40.55	32.07	24.77
Low (grams/student)	6.55	6.55	7.45	11.48
Range (grams/student)	34.00	34.00	24.62	13.29

Table 2. Number of Lunches Served

	Entire Study	Preintervention	Intervention	Postintervention
Ave. No. Lunches Served Daily	174.5	174	174.5	176
High	197	186	194	197
Low	141	159	158	141
Range	56	36	36	56

that comparisons could be made on a percentage basis.

RESULTS

A total of 137 days of salad bar data was collected by food service staff. The average amount of vegetables selected throughout the study was 18.30 grams/student. The highest amount was on November 7, 2008, with 40.55 grams/student; the lowest amount was on December 19, 2008 with 6.55 grams/student. Both of these dates were preintervention. The average amount selected during preintervention was 21.65 grams/student. The average amount selected during the intervention period was 16.67 grams/student, with a high of 32.07 and a low of 7.45 grams/student. The average amount selected during postintervention was 16.85 grams/student, with a high of 24.77 grams/student and a low of 11.48 grams/student (Table 1).

Throughout the project period, the number of lunches served ranged from 141 to 197, with a daily average of 174.46 (Table 2). Number of lunches served is primarily influenced by the entrée offered on any given day. During the 2008-2009 school year on days when favorites such as chicken nuggets and pizza were offered, the average number of students served was 186.5 and 179.2, respectively. When chili was served, the daily average was 165.2.

The rate of change in daily salad bar consumption was also calculated. For the preintervention period, the rate of change was -0.4030 (Figure 1). This negative trend was influenced by the high daily values early in the study and lowest values found right before intervention. During the gardening intervention, this trend reversed, with a +0.3940 rate of change (Figure 2). After the intervention was completed, daily consumption rates continued to increase, with a +0.2037 daily rate of change (Figure 3).

Preintervention to intervention comparisons showed a significance (2-tailed) of .001. Intervention to postintervention comparisons showed a significance (2-tailed) of .850. Comparisons of pre to post are statistically significant (.002).

Volunteers collected salad bar participation data 11 times during the study. The average daily participation throughout the study was 39.9%. The highest participation was on November 14, 2008, with 51.1%, while the lowest participation occurred December 17, 2008 with 22.4%. Both of these were during the preintervention period. Average participation during preintervention was 37.6%. Average participation during the intervention period was 46.9% with only 2 data collection dates. Data was collected only once during postintervention and showed a 39.8% participation rate (Table 3).

Plate waste studies for vegetables were conducted by student volunteers during the preintervention period, showing vegetable waste of 35.8% and 29.8%. Due to the lack of available manpower, no additional plate waste studies were conducted the remainder of the school year.

DISCUSSION

The amount of vegetables selected from the salad bar varied considerably day to day throughout the entire study period. This range is most likely attributed to different salad bar food choices offered on any given day, absences by students who typically used the salad bar, and daily school activities (gardening or food lessons that morning) that may have influenced a student's food choice later that day. Additionally, availability of a favorite entrée may have dissuaded students from seeking vegetables.

The range in daily values was greatest before intervention, with both the highest and lowest daily values

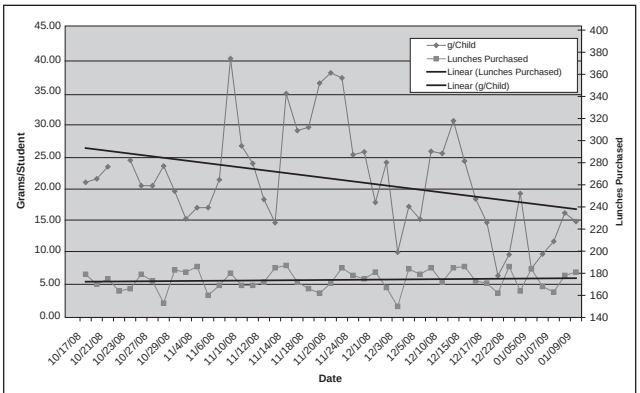

Figure 1. Average grams of vegetables per child, 10/17/08-1/9/09.

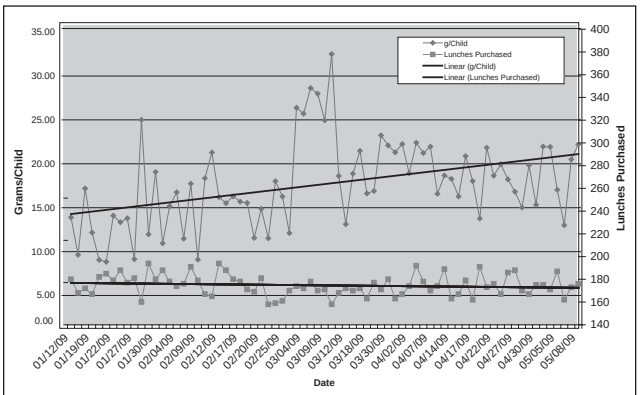

Figure 2. Average grams of vegetables per child, 1/12/09-5/8/09.

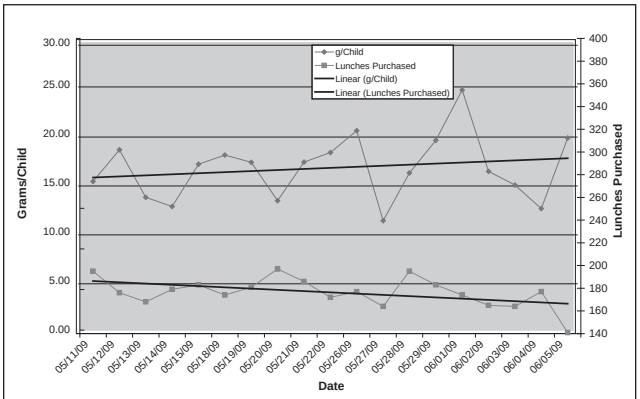

Figure 3. Average grams of vegetables per child, 5/11/09-6/5/09.

of the entire study in this preintervention period. As intervention and then postintervention occurred, the daily range became more consistent. The high daily value for each period decreased while the low daily value increased over time. The highest consumption was seen early in the study when the salad bar was new and many children were curious and eager to learn about it. As the salad bar's novelty diminished so did consumption rates, which raises the question as to whether or not repeated pep rallies would be effective in rejuvenating salad bar use.

The lowest consumption occurred in late December and early January, immediately before the gardening intervention began. However, the negative trend in daily salad bar selection before intervention was reversed, and a steady increase was seen during the intervention period. This suggests that intervention helped increase the quantity of vegetables selected per student. This increase continued postintervention, although at a lesser rate than during intervention. The average daily value also increased slightly between intervention and postintervention, which showed that gardening intervention lessons and activities were retained by the students after the lessons and activities were completed.

There are some inherent limitations in the analysis method chosen. While we can see that the quantity of vegetables selected from the salad bar increased during the intervention, we do not have sufficient data to determine if this is due to a change in the number of students using the salad bar, the students selecting larger portions, or both.

Due to the limited number of plate waste studies conducted, we are unable to determine if the amount of waste (vegetables selected from the salad bar by students but then discarded) varied throughout the study. Collection of this data in future studies would eliminate another possible variable in our analysis. Another issue is that the observation period is confounded by the introduction of the salad bar, which is itself an intervention. However, a span of several months between the introduction of the salad bar and the gardening intervention appeared to eliminate any novelty factor.

CONCLUSION

Elmore Elementary School was able to keep the salad bar after completion of the grant. However, because the beginning of the 2009-2010 school year was accompanied by concerns with the H1N1 virus, school personnel decided not to utilize the salad bar. Therefore, additional data was not collected during the 2009-2010 school year.

Community-based research presents many information-gathering challenges. This study has provided a sound foundation for moving forward and expanding our efforts. As previously noted, additional plate waste studies would indicate if changes in the quantity of food selected from the salad bar resulted in changes in actual consumption. Additional data collection regarding the number of students who used the salad bar also would be helpful as well as using another school as a

Table 3. Number of Students Using Salad Bar (As a Percentage of Total Purchased Lunches)

	Entire Study	Preintervention	Intervention	Postintervention
No. of Counts	11	8	2	1
Daily Average (%)	40.05	38.36	46.9	39.8
High (%)	51.1	51.1	49.4	39.8
Low (%)	22.4	22.4	44.4	39.8
Range	28.7	28.7	5.0	0

control group. Since this project relied on quantitative data collection, the addition of qualitative data would strengthen the research. While this study's results showed a reverse in the trend line of vegetables selected from the salad bar, additional data collection would provide a clearer picture as to the effectiveness of gardening as an intervention strategy.

Financial Disclosures: None declared.
Funding/Support: None declared.

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WISCONSIN MEDICAL JOURNAL

Occupational Respiratory Health: A Survey of Wisconsin Workers Who Wear Respirators

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ABSTRACT

Context: Little is known about Wisconsin workers who wear respirators and the prevalence of work-related asthma (WRA) in that population. To understand this problem, we questioned workers who wear respirators.

Objectives: The primary objective was to learn more about the health experiences of workers who wear respirators. A secondary objective was to evaluate the utility of the survey in WRA surveillance.

Design: A survey was mailed to an opportunistic sample of workers who received medical evaluation for respirator fit testing.

Participants: Surveys were sent to 1356 workers medically evaluated to wear a respirator; 192 surveys were completed and returned.

Results: The majority of respondents were men who have been medically evaluated for respirator wear an average of 3 times during their career. Every time, most respirator medical evaluations used 3 evaluation tools: questionnaire, physical exam and breathing test. Thirty-two percent of survey respondents had some asthma symptoms while at work in the last 30 days, and half reported discussing these symptoms with a physician. Lifetime prevalence of asthma as determined by this survey was 18%. Lifetime prevalence for WRA among this population was 3% (18% among those with asthma).

Conclusions: This survey was an efficient and effective way to learn more about workers' respirator experiences and to determine the prevalence of asthma in this population. Few differences existed between those with asthma and those without. However, some differences were noted between those with asthma and those with WRA. Data also suggest that the respirator medical evaluation process provides an opportunity for health practitioners to discuss asthma and asthma prevention with workers.

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INTRODUCTION

The United States Department of Labor estimates that 3% of all private sector employees use respirators.[1] Applying this statistic to Wisconsin's workforce provides an estimate that approximately 86,000 Wisconsin workers wear respirators.

This project made use of respirator medical evaluation billing codes to gather information about asthma symptoms at work, the respirator medical e valuation process, use and maintenance of respirators, worksite asthmagen exposures, and the prevalence of asthma and work-related asthma (WRA) in workers who wear respirators.

WRA is a common lung disease in industrialized nations. Two forms of WRA exist: 1 in individuals with asthma who develop *work-exacerbated asthma* after exposure to contaminants at their work place, and *occupational asthma*, which develops in those with no history of asthma after a single high dosage or prolonged sensitization to air contaminants at work.[2] Diagnosis of WRA is made by establishing a connection between asthma symptoms and work by a health practitioner. While the numbers are relatively low, examining WRA causes and medication is important because costs associated with workers' compensation claims and hospitalization are high.

Surveillance of WRA is challenging because employers do not routinely collect information about employee asthma, and health care professionals do not routinely collect employment information. Furthermore, some clinics believe information is sensitive and that releasing it to public health agencies will violate patient privacy. Employers resist sharing information for fear of

Table 1. Work-Related Asthma Questionnaires

OSHA respirator Medical Evaluation Questionnaire. http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9783. Accessed May 14, 2010.
Wisconsin Asthma Questionnaire—Union Survey, 2003
New Jersey Department of Health and Senior Services, Occupational Health Services Work-Related Asthma Questionnaire
California Work-Related Asthma Surveillance—SENSOR Questionnaire, August 2006
Massachusetts SENSOR—Patient Questionnaire—Work-Related Asthma (WRA); January 2008
US Department of Labor Bureau of Labor Statistics Survey of Respirator Use and Practices, OMB No. 1220-0171; 2000
Asthma Control Test; GlaxoSmithKline. http://www.asthmacontrol.com. Accessed May 14, 2010.
ThedaCare At Work—Respirator Medical Evaluation Questionnaire
Michigan Occupational Asthma Follow-up Telephone Questionnaire
Institute of Occupational Medicine—UK; Survey of the health of people; 1987

alarming workers or triggering an inquiry by the United States Occupational Safety and Health Administration (OSHA). This project sought to overcome some of these challenges by evaluating the utility of using a survey to establish surveillance of workers who wear respirators, to gain an understanding of those workers, and to determine any differences between those with asthma and those without.

MATERIALS AND METHODS

The Survey

An anonymous mail survey was developed to collect information about worker demographics, respirator usage, respirator fitness evaluation, asthma/WRA diagnosis, and symptoms. The survey was based on surveys found in scientific literature and information needed to answer our research questions. Table 1 includes a list of surveys reviewed to generate survey questions. Final questions and a summary of responses are included in the Appendix (online at www.wisconsinmedicalsociety.org/wmj). Surveys were created, scanned, and evaluated using Cardiff Teleform® software.

The Participants

Recruitment of participants involved a 2-step process. First, project staff approached clinics that medically evaluate workers for respirators through an online survey to Wisconsin Medical Society Occupational Workgroup members in order to obtain names of patients who had been tested. Fifteen clinic representatives responded, 6 agreed to participate, and 3 were undecided. Those indicating willingness to participate or who were undecided were contacted to reaffirm participation. Three representatives agreed to supply patient addresses. To increase the sample size, 2 additional clinics were contacted. Both expressed interest but neither provided mailing lists within the project timeframe. Participating clinics identified patients evaluated between 2004 and 2009 who were aged 15 to 85 years at the time of evaluation.

Based on clinic preference, surveys were either sent to patients by the clinic or address labels were supplied to the Bureau of Environmental and Occupational Health (BEOH.) Included with each survey was a cover letter explaining the project and a return postage-paid envelope. Each batch was marked with a due date 2 weeks after the mailing date. The first batch of surveys was distributed April 24, 2009, and the last batch of surveys was returned July 2, 2009.

A total of 1356 surveys were mailed; 138 were returned as undeliverable (10%); 192 completed surveys were returned for a response rate of 16%. (See Figure 1.)

Statistical Analysis

For analysis, participants were organized into 5 groups: "all respondents," "no asthma," "asthma," and, within asthma, sub-categories of "work-related asthma (WRA)," and "no work-related asthma (NWRA)." The following case definitions were used.

- *Asthma:* A doctor or medical professional has ever told you that you have asthma.
- *Work-related asthma:* Meets the asthma case definition, AND has been told by a medical professional that their asthma was work-related.
- *No work-related asthma:* Meets the asthma case definition, AND answered "No" to the question regarding being diagnosed as work-related.
- *No asthma:* Answered "No" to the question regarding being diagnosed with asthma.

Descriptive statistics were generated for all responses using Microsoft Excel and Statistical Package for the Social Sciences (SPSS). Chi-square analysis was done between assigned groups, and a 95% probability (0.05 *P*-value) was used to determine any statistical significance.

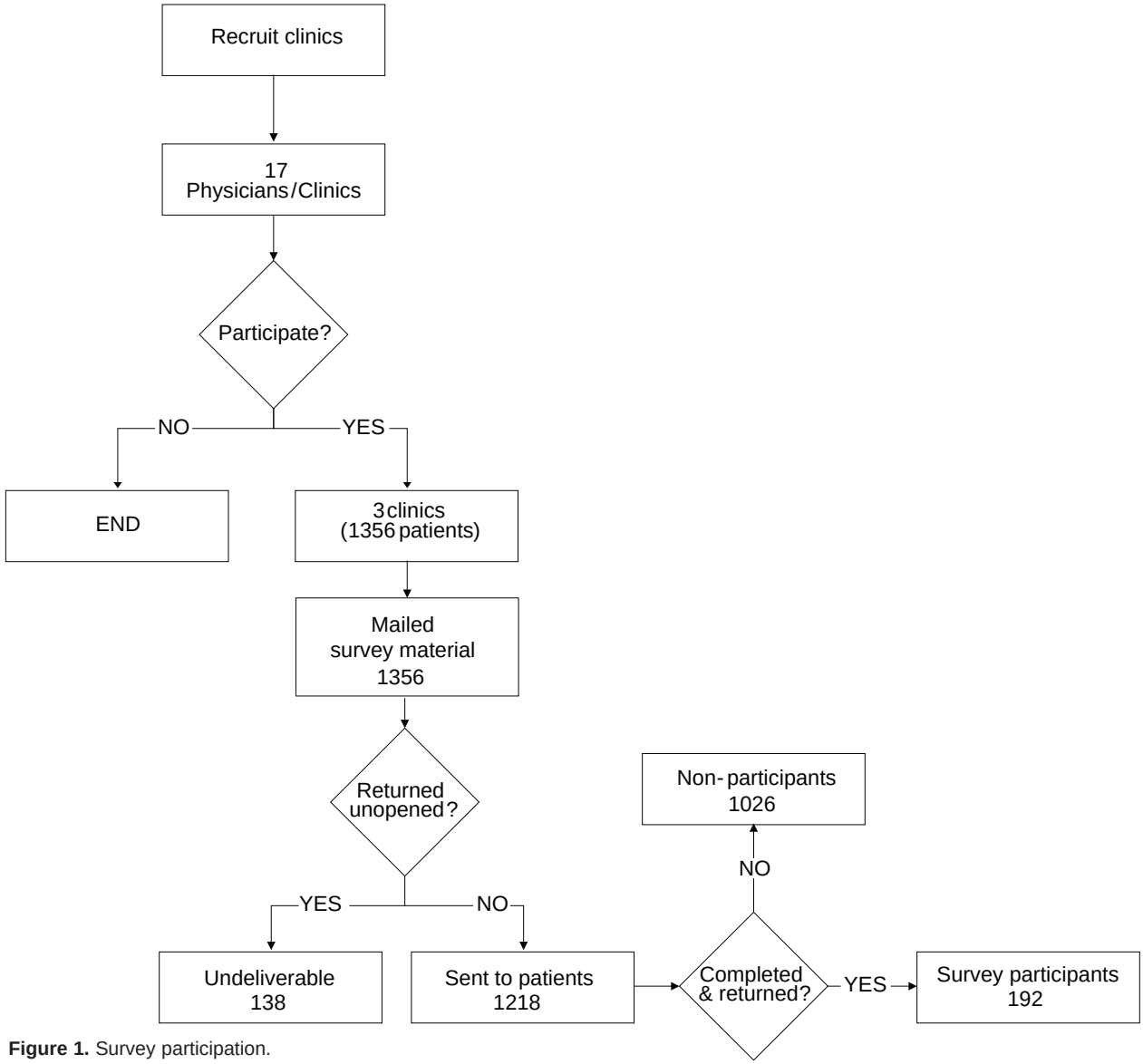

Figure 1. Survey participation.

RESULTS

Demographics

A total of 192 workers participated in the survey. There were 162 (84%) male participants and 30 (16%) female respondents. Nearly all respondents were not-Hispanic white (99%). Two respondents were African American/black (1%). No other races were represented.

Medical Evaluation

All respondents, regardless of their asthma status, reported similar respirator evaluation histories. The number of times they were medically evaluated during work years averaged 4.2 times (range: 0-40 times), and most reported last being evaluated in 2008. Eighty-eight percent of all respondents reported receiving a breathing test. Those diagnosed with WRA reported receiving a breathing test most often during their respirator medical evaluation. Of all respondents, 153 (91%) were approved to be fit with a respirator, including 89% of those who were diagnosed with asthma.

Health

Thirty-four (18%) met the asthma criteria, 155 (81%) responded they did not have asthma, and 3 (1%) did not answer the asthma diagnosis question. A higher percent of female respondents reported having asthma. This pattern is common among adults and may be due to the effect of hormones on esophageal/tracheal physiology.[3] Of respondents with asthma, 6 met our WRA definition (18% of those with asthma; 3% of total participants).

One respondent diagnosed with asthma did not answer the work-related question.

Thirty-two percent of respondents indicated that they experienced asthma symptoms at work not caused by a cold or respiratory infection within the previous 30 days. Twelve percent (23) of all respondents reported experiencing at least 3 asthma-like symptoms at work in the previous 30 days, as did 32% of those with asthma. Comparatively, 5% of respondents reporting no asthma diagnosis reported 3 or more symptoms. Most survey participants experiencing symptoms at work had them less than once a week (60%). Of the 6 respondents without asthma who experienced at least 3 symptoms, 2 reported symptoms 2 or more times a week, 1 reported 1-2 times a week, and 1 < once a week. Two respondents did not report symptom frequencies.

Fifty-six percent of all respondents reported discussing asthma or asthma-like symptoms—wheezing, coughing, chest tightness, and shortness of breath—with their primary care physician, 41% discussed them with an allergist, and 34% discussed them with the physician who did the respirator medical evaluation. In addition to discussing symptoms with their primary care physician, 83% of respondents diagnosed with WRA discussed symptoms with an allergist.

Respondents with asthma were asked how often asthma-specific medication was taken to ease breathing problems on the job. Thirty-nine percent of those with asthma and 67% with WRA indicated that they used inhalers or asthma medicine daily. Fewer indicated the use of inhalers or asthma medicine weekly (12% with asthma and 33% with WRA). Twenty-one percent with asthma (7) indicated that they did not use inhalers or medicine at all, and 1 person with no asthma indicated using breathing medication daily.

Employment

Just under half of the respondents (45%) indicated that they worked in the manufacturing sector the longest. Other frequently cited industry sectors included construction and services (18% each), agriculture (10%), health care (5%), and transportation/warehousing/utilities (2%). Industries were fairly consistent across all asthma groups. Three respondents with WRA (50%) worked in construction the longest. Twenty-one (12.6%) respondents are not currently employed but had been employed in the past.

Ninety-one percent of all respondents reported that they had never changed or quit a job because of asthma-like symptoms while at work. Fifty percent of those with WRA had changed jobs because of asthma-like symptoms. Respondents reporting a job change because of symptoms worked the longest in manufacturing or construction-industry sectors.

Work Activities

Frequent activities for respirator wearers included working directly with paint and chemicals in manufacturing processes or maintenance duties, or grinding and sanding. Those with asthma reported the activities of painting and cleaning. WRA participants' activities included painting or working with chemicals, hazardous materials activities, and grinding or sanding.

Respirator Use

Most participants recalled being trained for respirator fit (96%) and respirator usage (93%). Respirator maintenance training was recalled less frequently (81%). Among those diagnosed with asthma and WRA, the percentage trained in maintenance was lower (67% and 33%, respectively).

Seventy-eight percent of all respondents indicated wearing a canister or cartridge filter mask at work. Fifty-six percent wore a disposable paper mask such as an N-95 type, 32% wore an air-supplied mask, 1 person did not know the type of respirator, and 15 did not respond. Some respondents reported wearing more than 1 type of respirator. Those with no asthma were more likely to wear a canister or air supplied filter mask than those with asthma. All participants with WRA reported wearing an N-95 disposable filter mask at work. Asthma respondents wore respirators an average of 6.8 times (range: 0-31 times) each month, and those reporting no asthma wore theirs an average of 6.6 times (range: 0-31 times). Sixty-one percent of the respondents reported wearing a respirator 0-2 hours at a time. The average continuous amount of time respondents wore a respirator during a work shift was 3-4 hours. Twenty-nine participants (16%) indicated they did not wear a respirator at all. Of those, 6 reported having asthma (26% of those with asthma) and 2 reported having WRA (33%).

Substance Exposure

Sixty-seven percent of the 175 respondents reported being exposed to dust, 60% reported exposure to chemicals, 39% to gases, and 13% to other substances such as biological contaminants. A majority of respondents reported being exposed to multiple contaminants. As with overall respondents, those with asthma or WRA reported a higher exposure to chemicals (57% and 83% respectively).

Many (106) did not respond with specific chemical names. The lack of response should be further investi-

Table 2. Exposures

Acids /bases/oxidizers[a]	Formaldehyde[a]	Polyurethane
Aluminum	Hexavalent chromium[a]	Silica
Ammonia/ ammonium bicarbonate	Hydrocarbons	Solvents
Asbestos	Lacquers	Smoke
Carbon monoxide	Methyl ethyl ketone	Stainless steel fumes[a]
Chlorine[a]	Mold	Sulfuric acid[a]
Concrete dust	Natural Gas	Sulfur oxides
Cyanates/Isocyanates[a]	Nickel[a]	Thinners
Diesel fuel	Paint fumes[b]	VOCs
Epoxy resins[a]	Plexiglass/fiber glass	Welding fumes
Feathers	Lacquers	Wood dusts
Fluorine[a]	Pollen	

[a] Asthmagen
[b] Asthmagen determination is dependent on chemical composition.

gated because all workers are required to have access to material safety data sheets. Of those who did report specific substances, the most frequently reported include lead- or epoxy-based painting products, chlorine, cement/silica/quartz dust, strong acids (e.g. muriatic acid), sulfur dioxide, ammonia, wood dust, and methyl ethyl ketone (MEK). We compared these to known asthmagens and list them in Table 2. (Many researchers/references make the distinction between asthma inducers [cause] and inciters [triggers]. Here we take a broader view and call any substance with the potential to cause airway hypersensitivity regardless of its mechanism an asthmagen.) Those diagnosed with WRA reported working with epoxy resins, paints, lacquers, and polyurethane most often. However, the numbers are small and no associations could be made.

DISCUSSION

Low Response Rate

The 2-step process for this survey project was timely and economical; however, we were concerned with project validity because both clinic participation and patient response was low.

Clinics stated a lack of staff and/or legal concerns about violating patient privacy rules as reasons for not participating. Initial clinic inquiry was used to educate clinics regarding Wisconsin State Statute Chapter 250 and exemption from HIPAA for public health surveillance, investigation, or intervention.[4,5] Clinics choosing to participate were given the opportunity to review and edit survey questions. Edits included eliminating anything that may lead to identifying patients such as birth date, income, and ZIP code, which limited the amount of demographic data collected.

Survey methodology did not allow us access to respondent information to determine reasons for the low patient response rate, and clinics mailing the surveys were unable to do a second mailing due to staff time concerns. We do know that 138 of the surveys were returned to us by the Postal Service and speculate that those medically evaluated during the earliest timeframe of this study may have relocated. Additionally, not all respondents answered all questions, limiting calculation for statistical significance to select questions.

Validity

Because of the low response rate, we assessed the validity of our findings by looking at the randomness of responses and the comparability of available demographics of responders to non-responders and then compared findings with others published research.

Randomness

Responses received were spread across 43 of Wisconsin's 72 counties; the gender demographic of responders to non-responders was equal.

Comparisons

A comparison of respondent industry to the number of workers in each industry was not done since no publications exist regarding the number of workers who wear respirators in Wisconsin industries.

The OSHA respiratory protection standard requires that a documented program include an exposure assessment, selection criteria, medical evaluation, fit testing, and training.[6] A 2007 national study found half of all private sector establishments do not comply with this medical fitness evaluation requirement.[7] In addition to medical evaluation compliance, respondents reported that they received training in fit, usage, and maintenance on the job; however, a substantial number of survey participants did not answer this question, prompting us

to wonder if any training was received. This was reinforced when 1 respondent relayed respirator maintenance concerns and stated that he had developed WRA as a result of exposure to paint and mold due to infrequent respirator maintenance.

Work information needed to determine prevalence is not readily available. Surveys are thought to be a good way to collect prevalence data directly from the population studied, but due to methodology or question wording, there may be bias in the tool, and differences may exist. A 2006 Behavioral Risk Factor Surveillance Survey (BRFSS) found a 13% lifetime prevalence of asthma in Wisconsin and a WRA prevalence of 11% among those diagnosed with asthma.[8] The American Thoracic Society reports a median value of 15% is a reasonable estimate of the occupational contribution burden of asthma.[9,10] This met our goal of determining asthma/WRA prevalence among this population as we found 18% lifetime asthma prevalence and 18% WRA prevalence among those diagnosed with asthma, which seems reasonable. We were also able to gain information about the industries, occupations, and exposures of workers who wear respirators.

Findings

As expected, a statistical difference existed between the number and frequency of asthma symptoms and medications between those with asthma and those without. However, a quarter of those not diagnosed with asthma reported having asthma-like symptoms at least once a week. This is disconcerting, since any cough can adversely impact the effectiveness of a respirator by breaking the respirator seal and allowing an exposure.[11] We unexpectedly saw no difference between any of the 4 groups regarding medical clearance and job change.

This descriptive research project was undertaken to answer questions regarding workers who wear respirators and to assess the process to collect this information. Even with the low response rate, we believe data collected can be used as a baseline for further, more rigorous research to determine any correlations between respirator wear, asthma, and work.

CONCLUSIONS

Prior to this study, limited information existed on Wisconsin workers who wear respirators: their health, respirator medical evaluation efforts, industry/occupation, or exposure history. Despite some limitations, this project provided that insight.

We found that the majority of Wisconsin workers who were medically evaluated to wear respirators were Caucasian men not of Hispanic origin. These workers were evaluated multiple times during their work years, with an average of 3 tests prior to being fit with a respirator. Most were fitted with a canister-type or air-supplied respirator and wore their respirator to protect themselves most frequently from chemicals and dust in manufacturing and construction. Likely because statistical power was limited by small sample size, we found few statistically significant differences between those with asthma who wear respirators and those not diagnosed with asthma.

This information, along with prevalence data, can be used by health care professionals, especially those performing respirator use certification, to create work-related asthma awareness and prevention strategies.

Financial Disclosures: None declared.
Funding/Support: This project was partially funded through grants from NIOSH and CDC: 2U60OH008484-04 and 2U59/EH524190-04, respectively.

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WISCONSIN MEDICAL JOURNAL

The Effect of Physician Workload on an Educational Intervention to Increase Vitamin D Screening

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ABSTRACT

Rationale, Aims and Objective: Changes in physician behavior are difficult to accomplish. We hypothesized measuring physicians' vitamin D levels would increase measurement of their patients' levels.

Methods: We recruited faculty via e-mail. We measured physicians' serum 25(OH)D levels and asked them to complete a questionnaire created to assess the risk of vitamin D deficiency. Physicians received their vitamin D test results by mail. We monitored physicians' vitamin D testing rate per 100 patient visits in the 12 weeks before and after receipt of their own vitamin D test result.

Results: Twenty-eight (22%) of 126 primary care physicians participated in the study; all were Caucasian and 17 (61%) were women. Gender, practic type, and year of graduation from medical school were similar in participants and non-participants. Over half of participants took a multivitamin and a third took a vitamin D supplement. Although 6 (21%) reported a recent fracture, only 1 physician carried a diagnosis of osteopenia or osteoporosis. At baseline, geriatricians ordered 14 vitamin D tests per 100 patient visits, while internists and family practitioners ordered substantially fewer tests (2 and <1 tests per 100 visits, respectively). After study participation, vitamin D testing rates increased significantly among family practitioners (rate ratio 3.27, 95% CI 1.29-8.33) and internists (rate ratio 3.19, 95% CI 1.12-9.07). Physicians with heavier clinic workloads were half as likely (rate ratio 0.50, 95% CI 0.32-0.76) as those with lighter clinic workloads to increase vitamin D testing rates. Surprisingly, physicians with hypovitaminosis D demonstrated no change in vitamin D testing rates.

Conclusions: Physicians with low vitamin D testing rates were receptive to a personal intervention involving measurement of their own vitamin D levels. High workload appeared to attenuate this effect. These novel but preliminary observations require confirmation in future studies.

INTRODUCTION

Hypovitaminosis D, defined as a serum 25(OH)D <30 ng/ml by radioimmunoassay, is common in Americans including inpatients,[1] post-menopausal women with osteoporosis,[2] internal medicine residents,[3] and adolescents.[4] Vitamin D is an essential steroid hormone regulating calcium homeostasis. After skin synthesis, the hormone undergoes 2 hydroxylation steps to a bioactive form [1,25(OH)2D] that increases intestinal calcium absorption.[5] Hypovitaminosis D permits decreased calcium absorption, leading to a decline in serum ionized calcium levels, release of parathyroid hormone, and osteoclastic bone resorption. This cascade of events maintains normocalcemia in the short term, but if untreated may eventually cause bone loss presenting as osteoporosis or osteomalacia.[5]

Individuals at risk of hypovitaminosis D include those with limited exposure to sunlight, low intake of dairy products, malabsorption, malnutrition, and those taking medications that interfere with vitamin D metabolism.[5,6] Although experts suggest measurement of serum vitamin D in these individuals,[6-8] we observed locally that many such patients did not undergo testing. We thus identified the need for an educational intervention to increase the rate of vitamin D testing in patients with risk factors or signs of vitamin D deficiency.

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Although educators frequently use didactic lectures to teach physicians, such lectures generally do not affect patient care.[9] Handouts can enhance practice improvement following a didactic lecture.[10,11] Interactive sessions involving learning stations and patients are more successful at changing physician behavior than didactic lectures.[9] A physician's own medical experience might also influence patient care. Indeed, internal medicine residents' health behaviors predicted the preventive services and screening tests they recommended to their patients.[12]

We hypothesized that measurement of physicians' vitamin D levels would increase testing for hypovitaminosis D in their patients. We designed a study to test this hypothesis. The primary study outcome was the change in the frequency by which physicians measured serum 25(OH)D in patients after study participation. Secondary outcomes included whether a handout or the presence of hypovitaminosis D in physicians affected the frequency by which physicians ordered 25(OH)D levels in their patients.

METHODS

Through mass e-mail, we invited 126 faculty physicians employed by the University of Wisconsin (UW) General Internal Medicine, Geriatric Sections, and Family Practice Departments to participate in this study. Faculty physicians who provided primary care to outpatients at least a half day weekly were eligible for participation. During the consent process, we informed physicians that we would measure their 25(OH)D levels and monitor the frequency by which they ordered 25(OH)D levels in their patients. Each consenting participant received a $20 honorarium.

Following informed consent, each physician completed a questionnaire[13] created to assess the risk of vitamin D deficiency. Physicians answered questions reflecting intake of nutritional supplements and sun-seeking habits. The questionnaire asked physicians to report chronic diarrhea, Crohn's disease, ulcerative colitis, or celiac sprue, any of which might lead to vitamin D deficiency via malabsorption. On the questionnaire, participants also recorded symptoms or signs of suboptimal vitamin D status including muscle pain or weakness, fracture within 5 years, height loss, or a diagnosis of osteopenia or osteoporosis. Physicians could skip any question they felt uncomfortable answering.

We collected blood from each participant and measured serum 25(OH)D and whole parathyroid hormone (PTH) levels. The UW Clinical Laboratory performed serum 25(OH)D assays using a reverse-phase high-performance liquid chromatography (HPLC) assay.[14] We defined hypovitaminosis D as a serum 25(OH)D level <25 ng/ml, based on a study showing that a serum 25(OH)D of ~30 ng/ml by radioimmunoassay corresponds to a level of ~25 ng/ml by HPLC (unpublished data). Scantibodies Laboratory, Incorporated (Santee, California) performed whole PTH measurements. Participating physicians received their test results by mail, along with an explanation of the results. Half of the physicians received a handout describing the potential medical consequences of hypovitaminosis D.

The UW Information Technologies Department and UW Laboratory provided the number of vitamin D tests ordered on patients of each physician in the 12 weeks before and following receipt of their test results. Since faculty physicians typically keep a consistent clinic schedule over a span of 3 months, this period served as a reasonable interval for interactions with patients. To adjust for patient volume in each 12-week interval, we determined each physician's vitamin D testing rate per 100 patient visits. The IRB protocol number for this study was 2004-1096.

ANALYSIS

The primary study outcome was the change in vitamin D testing rate in the 12 weeks after study participation, compared to the 12 weeks prior to participation. We normalized the vitamin D testing rate to clinical workload by calculating the testing rate per 100 patient visits. We estimated sample size based on the assumption that each participant would order serum 25(OH)D in 5 patients over a 3-month span pre-intervention and in 10 patients over a 3-month span post-intervention. Using a 2-sided 5% level test, a sample size of 26 physicians was required to detect this change with 90% power.

Descriptive statistics (mean ± SD for continuous variables and n [%] for categorical variables) were tabulated for all participants. Demographic factors included physician gender, specialty practice, year of graduation from medical school, and patient workload (the total number of patient visits in 24 weeks). Health factors included use of multivitamin or vitamin D supplements and presence of prior fracture, height loss, or myalgia. Study factors included receipt of a handout and a diagnosis of hypovitaminosis D in physicians.

We assessed associations between participant characteristics and baseline rates of serum 25(OH)D testing using negative binomial regression models with a log link function. We included the (log) number of patient visits in the model as an offset term. Univariate models were fit including covariates individually. We con-

Table 1. Physician Characteristics

	Participants (n=28)	Non-Participants (n=99)
Demographic Factors		
Female Gender	17 (61%)[a]	43 (43%)[a]
Specialty		
Geriatrics, n=16	3 (19%)[b]	13 (81%)[b]
Family Practice, n=30	8 (27%)[c]	22 (73%)[c]
Internal Medicine, n=81	17 (21%)[d]	64 (79%)[d]
Year Graduated Medical School	1986 ± 10 years[e]	1985 ± 10 years[e]
Patient Visits Per Physician	1045 ± 448	
Health Factors		
Multivitamin Use	16 (57%)	
Vitamin D Supplementation	9 (32%)	
Prior Fracture	6 (21%)	
Height Loss	4 (14%)	
Myalgia	3 (11%)	
Study Factors		
Receipt of Handout	14 (50%)	
Hypovitaminosis D Diagnosis	6 (21%)	
25(OH)D, ng/mL	32 ± 10	
PTH, pg/mL	37 ± 12	

Data are presented as mean ± SD for continuous variables and n (%) for categorical variables. We compared participants and non-participants according to various demographic factors. PTH, parathyroid hormone levels.
[a] *P*-value of 0.80 for gender
[b] *P*-value of 1.0 for geriatric specialty
[c] *P*-value of 0.49 for family practitioners
[d] *P*-value of 0.70 for internal medicine practice
[e] *P*-value of 0.80 for year of graduation from medical school

sidered 2 multivariate models, 1 including all covariates and 1 including a subset of covariates selected via backward elimination to maximize Aikaike's Information Criterion (AIC), a measure of the goodness of fit of 2 statistical models.

We assessed changes in rates of serum 25(OH)D testing post-intervention within participants using logistic regression models. We included the (log) ratio of patient visits post-intervention to pre-intervention in the model as an offset term. Univariate models were fit including covariates individually. We estimated ratios of serum 25(OH)D testing rates, post-intervention relative to pre-intervention, for individual covariate values and estimated potential differential effects by covariate levels using appropriate interaction tests. We again considered 2 multivariate models, 1 including all covariates and 1 including a subset of covariates selected via backwards elimination to maximize Aikaike's Information Criterion (AIC).

RESULTS

We sent letters of invitation via e-mail to faculty physicians in General Internal Medicine (n=81), Geriatrics (n=16), and Family Practice (n=30) Departments. Twenty-eight of 127 physicians, representing 22% of invited faculty, agreed to participate in the study. All physicians were Caucasian, 17 (61%) were women, and 6 (21%) had hypovitaminosis D (Table 1). Participation rates were similar across specialties ($P>0.05$ for comparisons between participants and non-participants, Table 1) with 21% (n=17) internists, 19% (n=3) geriatricians, and 27% (n=8) of family practitioners participating. Gender did not seem to influence the decision to participate, as 17 of 28 participants and 43 of 99 non-participants were female ($P=0.11$, Table 1). Years of experience likewise did not appear to influence participation, as responders completed medical school in (mean ± SD) 1986 ± 10 years, and non-responders completed medical school in 1985 ± 10 years ($P=0.80$, Table 1).

Physicians completed a questionnaire created to identify risk factors for and signs of vitamin D deficiency.[13] As shown in Table 1, over half of participants took multivitamins and a third took vitamin D supplements. Although 6 physicians (21%) reported a fracture within the past 5 years, none had a diagnosis of osteoporosis, and only 1 participant reported osteopenia. Three participants reported muscle pain but none endorsed muscle weakness. Two participants reported a diagnosis of inflammatory bowel disease or celiac sprue, 1 of whom also reported diarrhea within the past 2 weeks.

When investigating factors associated with the baseline vitamin D testing rates, physician specialty and number of patient visits were significant in both univariate and multivariate analyses (Table 2). Geriatricians ordered 13.7 tests per 100 patient visits. By contrast, internists ordered 1.6 tests per 100 visits (RR 0.11, 95% CI 0.02-0.69 univariate; RR 0.22, 95% CI 0.04-1.32 multivariate), and family practitioners ordered only 0.2 tests per 100 visits (RR 0.01, 95% CI 0.00-0.11 univariate; RR 0.02, 95% CI 0.00-0.18 multivariate). Physicians with heavier workloads ordered fewer vitamin D tests (RR 0.24, 95% CI 0.06-0.95 univariate; RR 0.33, 95% CI 0.11-1.04 multivariate). Other demographic, health, and study factors did not associate with baseline vitamin D testing rates.

Univariate analyses revealed small changes in vitamin D testing rates in the 12 weeks following study participation (Table 3). We found a significant reduction in vitamin D testing rates post-intervention in physicians with heavy workloads (over 1000 patient visits in the 24-week study period) (RR 0.75, 95% CI 0.58-0.97), which persisted after adjustment for other factors (RR

Table 2. Physician Characteristics Associated with Vitamin D Testing Rates at Baseline

		Univariate		Multivariate[c]	Multivariate[d]
		Rate[a]	RR[b] (95% CI)	RR[b] (95% CI)	RR[b](95% CI)
Demographic Factors					
Gender	Female	1.25	1.00	1.00	
	Male	0.91	0.73 (0.16, 3.35)	0.82 (0.17, 3.92)	
Specialty	Geriatrics	13.69	1.00	1.00	1.00
	Family Practice	0.20	0.01 (0.00, 0.11)	0.01 (0.00, 0.10)	0.02 (0.00, 0.18)
	Internal Medicine	1.57	0.11 (0.02, 0.69)	0.15 (0.02, 1.46)	0.22 (0.04, 1.32)
Patient Visits	1-1000	2.28	1.00	1.00	1.00
	1001-2000	0.54	0.24 (0.06, 0.95)	0.54 (0.11, 2.65)	0.33 (0.11, 1.04)
Health Factors					
Multivitamin Use	No	0.84	1.00	1.00	
	Yes	1.34	1.58 (0.35, 7.11)	0.50 (0.13, 1.90)	
Vitamin D Supplement	No	0.88	1.00	1.00	
	Yes	1.76	2.00 (0.42, 9.42)	3.20 (0.69, 14.81)	
Prior Fracture	No	1.27	1.00	1.00	
	Yes	0.64	0.50 (0.08, 3.16)	0.61 (0.08, 4.71)	
Height Loss	No	1.01	1.00	1.00	
	Yes	1.86	0.61 (0.23, 14.53)	2.43 (0.37, 15.96)	
Myalgia	No	1.03	1.00	1.00	
	Yes	1.85	1.79 (0.17, 18.48)	0.97 (0.07, 14.26)	
Study Factors					
Receipt of Handout	No	1.39	1.00	1.00	
	Yes	0.87	0.63 (0.14, 2.74)	1.03 (0.32, 3.32)	
Hypovitaminosis D	Yes	1.70	1.00	1.00	
	No	1.00	0.59 (0.09, 3.96)	0.22 (0.04, 1.18)	

[a] Tests per 100 visits
[b] Rate ratio (relative to reference category)
[c] Adjusted for demographic, health, and study factors
[d] Adjusted for practice and total visits (selected by Aikaike's Information Criterion)

0.50, 95% CI 0.32-0.76). Multivariate analyses showed that, after adjusting for the confounding effects of physician workload and other factors, there were significant increases in vitamin D testing rates among family practitioners (RR 3.27, 95% CI 1.29-8.83) and internists (RR 3.19, 95% CI 1.12-9.07) compared to geriatricians. Notably, these physician groups had very low testing rates at baseline, suggesting that the low testing rate was the primary factor driving the change in testing.

When we designed the study, we hypothesized that physicians diagnosed with hypovitaminosis D would be more likely to increase their vitamin D testing rate. Surprisingly, we found that a physician's vitamin D status had no apparent influence on the change in testing rate. Six physicians had hypovitaminosis D, including 3 physicians who increased their testing rate and 3 who did not increase their testing rate after study participation (P=0.72). Receipt of a handout likewise had no effect on vitamin D testing rates. Multivariate analyses controlling for other factors confirmed univariate analyses.

DISCUSSION

Several studies emphasize a lack of change in patient care following a single didactic lecture.[9,15,16] Interactive programs are most likely to improve patient care.[16] We thus hypothesized that measurement of physicians' own vitamin D levels might alter the frequency by which they ordered the test in their patients. Internist and family practitioners, who at baseline ordered fewer vitamin D tests than geriatricians, showed a 3-fold increase in the rate of testing following study participation thus reducing, but not eliminating, the testing gap. Additionally, clinic workload was associated with change in performance following the intervention. When compared to physicians with a lighter clinic schedule, physicians with a heavier schedule were half as likely to increase vitamin D testing rates following study participation. Thus, our personal intervention appeared to influence testing rates, although the effect seemed limited to physicians with a lighter patient workload.

The impact of workload on physician response to quality improvement efforts is scarcely studied, despite

Table 3. Physician Characteristics Associated with Vitamin D Testing Rates per 100 Patient Visits Postintervention

		Univariate		Multivariate[c]	Multivariate[d]
		RR[a] (95% CI)	Effect[b] (95% CI)	Effect[b] (95% CI)	Effect[b](95% CI)
Demographic Factors					
Gender	Female	0.90 (0.75, 1.09)	1.00	1.00	1.00
	Male	1.03 (0.83, 1.26)	1.14 (0.86, 1.51)	2.46 (0.94, 6.45)	2.46 (0.96, 6.33)
Specialty	Geriatrics	0.97 (0.76, 1.25)	1.00	1.00	1.00
	Family Practice	1.86 (0.83, 4.18)	1.91 (0.82, 4.54)	3.97 (1.43, 11.00)	3.27 (1.29, 8.33)
	Internal Medicine	0.92 (0.77, 1.10)	0.95 (0.70, 1.28)	3.41 (1.04, 11.18)	3.19 (1.12, 9.07)
Patient Visits	1-1000	1.07 (0.90, 1.26)	1.00	1.00	1.00
	1001-2000	0.75 (0.58, 0.97)	0.70 (0.52, 0.96)	0.35 (0.16, 0.78)	0.50 (0.32, 0.76)
Health Factors					
Multivitamin Use	No	0.86 (0.69, 1.07)	1.00	1.00	
	Yes	1.03 (0.86, 1.24)	1.19 (0.90, 1.59)	0.95 (0.44, 2.06)	
Vitamin D Supplement	No	0.97 (0.80, 1.16)	1.00	1.00	
	Yes	0.94 (0.76, 1.17)	0.98 (0.74, 1.30)	0.84 (0.42, 1.67)	
Prior Fracture	No	0.99 (0.85, 1.16)	1.00	1.00	
	Yes	0.83 (0.60, 1.14)	0.84 (0.59, 1.19)	0.87 (0.33, 2.29)	
Height Loss	No	0.94 (0.80, 1.09)	1.00	1.00	
	Yes	1.07 (0.75, 1.53)	1.14 (0.77, 1.68)	0.59 (0.23, 1.48)	
Myalgia	No	0.95 (0.82, 1.11)	1.00	1.00	1.00
	Yes	0.98 (0.64, 1.51)	1.03 (0.65, 1.63)	0.39 (0.08, 1.85)	0.37 (0.13, 1.06)
Study Factors					
Receipt of Handout	No	0.95 (0.79, 1.14)	1.00	1.00	1.00
	Yes	0.97 (0.78, 1.21)	1.02 (0.77, 1.36)	1.61 (0.83, 3.11)	1.32 (0.93, 1.87)
Hypovitaminosis D	Yes	1.02 (0.76, 1.37)	1.00	1.00	
	No	0.94 (0.80, 1.10)	0.92 (0.66, 1.29)	1.55 (0.62, 3.89)	

a Rate Ratio relative to baseline
b Relative change in rate ratio compared to reference category
c Adjusted for demographic, health, and study factors
d Adjusted for gender, practice, handout, myalgia, and total visits (selected by Aikaike's information criterion)

ample documentation of time pressures faced by primary care physicians when caring for patients.[17-19] Time constraints might impact patient care directly[20] or indirectly through low morale[17] or other mechanisms. For example, physicians identified lack of time as the greatest barrier to provision of dietary counseling to patients.[20] Our data support the concept that providers with less demanding workloads are more successful at incorporating changes into their clinical practice. These novel but preliminary observations require confirmation in future studies.

Our study has several limitations. The first is a small sample size, which limits the ability to detect all physician factors associated with a change in patient care following an educational intervention. Our study focused on the number of 25(OH)D tests ordered in a specific interval, without regard to whether a patient had risk factors, signs, or symptoms of deficiency meriting such measurement. While experts[6-8] recommend vitamin D measurement in patients taking medications that interfere with vitamin D metabolism and those with limited sun exposure, lactose intolerance, malabsorption, and malnutrition, we did not review the patient charts of physicians participating in this study to determine which patients met indications for vitamin D testing. Moreover, we studied testing rates in 3 different physician groups. As geriatricians care for elderly patients who commonly suffer from osteoporosis, it is not surprising that they had a higher baseline vitamin D testing rate. Additionally, we studied changes in testing rates over a short interval; whether a similar intervention can alter long-term practice is unknown. Finally, we studied faculty at a single academic institution. Other physician groups or health care professionals might manifest a greater or lesser change in practice performance following measurement of their own vitamin D levels.

CONCLUSION

Our study suggests that a simple intervention, measuring vitamin D levels in physicians, has an effect on vitamin D testing rates in their patients. Workload, baseline performance, and specialty were associated with

increased vitamin D testing rates following measurement of their own levels. If future research confirms the influence of workload, baseline performance, or specialty on practice improvement efforts, educators could use such knowledge to enhance educational interventions toward physicians.

Acknowledgments: We thank the physicians who participated in this study. We thank the American Medical Association for supporting this study through a Seed Grant Award.
Ethical Approval: Secured through University of Wisconsin Human Subjects Committee.
Financial Disclosures: None declared.
Funding/Support: The study was supported by an American Medical Association Seed Grant Award. KEH received salary support during the conduct of this study from the NIH (K23 AR050995) and through a career development award in Geriatric Medicine (T. Franklin Williams Scholar Award) supported by the American College of Rheumatology, Association for Specialty Physicians, Atlantic Philanthropies, and the John A. Hartford Foundation.

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WISCONSIN MEDICAL JOURNAL

Medical Student Exposure to and Attitudes about Pharmaceutical Companies

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ABSTRACT

Purpose: Medical students are at-risk to the influence of pharmaceutical company (Pharma) marketing. As interactions with the industry come under increasing scrutiny and regulation, previous studies on student-Pharma relations no longer may be accurate. This study assessed students' attitudes toward and interactions with Pharmas at the University of Wisconsin School of Medicine and Public Health (UWSMPH).

Method: A modified questionnaire based on a previously administered national survey was completed by students in April and May 2009. The survey was analyzed to disclose the frequency of student-Pharma interactions, where interactions took place, and differences between preclinical and clinical students.

Results: The overall response rate was 53.6% (348/649). Most student-Pharma interactions took place at locations remote from the main campus, with free lunches (70.2%), snacks (66.9%), and small, non-educational items (55.8%) representing the most common gifts. Many clinical students had discussed medical personnel-Pharma interactions with a physician or friend. Of those surveyed, 78% felt they had received limited instruction from the school on how to interact with Pharma representatives. Preclinical students expressed greater uncertainty about using Pharmas as educational resources and were more reluctant to accept Pharma gifts than clinical students.

Discussion: Student attitudes toward interactions with Pharmas reveal the need for further education and guidance—particularly on the risks of using Pharmas as educational resources. Pharma exposures remote from the main campus account for a high proportion of all interactions, which further highlights the need to educate students on conflicts of interest during their preclinical training.

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INTRODUCTION

Interactions between pharmaceutical companies (Pharmas) and medical personnel are pervasive and often influential. In 2004, US Pharmas spent an estimated $57.5 billion on marketing,[1] with $12 billion to $18 billion specifically targeting practicing physicians and residents.[2-5] This represents approximately $8000-$13,000 spent on each physician every year.[6-7] Pharmas may offer physicians a variety of services and gifts, including medication samples, meals, continued education, covered travel expenses, and sponsored research.[8,9] Wanza's 2000 review of the literature found physicians meet with Pharma representatives 4 times a month on average.[9] Almost all physicians report having some type of Pharma relationship, with free food and medication samples representing the most common exchanges.[10,11]

There is a substantial body of evidence to suggest that this relationship has a considerable impact on physician decision-making. Interactions with Pharma representatives increase the likelihood of physicians prescribing the sponsor's medication[12,13] and lead to non-rational prescribing.[9,14] Physicians are less likely to prescribe generic medications[9,15] and more likely to request that the sponsor's medication be added to hospital formularies.[9,16] There is a positive correlation between exposure to Pharma representatives and cost of a physician's choice of treatment.[17-18]

Practicing physicians, residents, and medical students acknowledge that Pharma marketing could impact their colleagues' decision-making.[19-22] However, in spite of evidence to the contrary,[9,12-18] they deny that they themselves could be influenced.[19,23-28] Those who believe they cannot be influenced are even more likely to accept gifts.[29] An unrecognized bias on the part

of the prescriber is likely the cause of this paradox.[30] Rather than eliciting a conscious decision to promote medications, marketing subliminally affects physician judgment and leads to unintentional changes in prescribing practices.[30]

There is currently limited information on relationships between Pharmas and medical students.[19] Previous studies show that students feel unprepared to deal with Pharma representatives,[31,32] and there is minimal awareness of the policies that regulate these interactions.[19] Students have high exposure to Pharma marketing,[19,33] but there is debate over the attitudes of students toward marketing during their preclinical versus clinical years. Hymen et al[31] found no difference, while Fitz et al[34] concluded that clinical students were more receptive of Pharma gifts than their preclinical counterparts. While a national survey conducted in 2003[19] explored student attitudes and exposures in detail, it failed to address preclinical students altogether. Additionally, given recent attention focused on these issues, that survey may no longer reflect current trends.

The purpose of this study was to conduct a comprehensive assessment of student attitudes toward Pharmas and exposure to their influence. We compared data from students during preclinical and clinical training, determined if trends have changed since the administration of the 2003 national survey, and identified additional aspects of student-Pharma interactions.

METHODS

Survey Development and Distribution

The questionnaire was derived from a previously administered national survey.[19] Modifications were made after consultation with the UW Survey Research Center and based on feedback during pilot testing. Additional questions related to unique institutional concerns were added. The study was reviewed and approved as an exemption by the Minimal Risk Institutional Review Board at the University of Wisconsin.

Administration of the survey was accomplished through the Online Admission Status Information System (OASIS), an electronic account used by students for a variety of school-related issues. Results were anonymous, and completion of the survey was tracked through OASIS. Students who did not complete the questionnaire were requested to do so again via e-mail. In total, 3 reminders were sent out at approximately 2-week intervals. The survey was conducted in April and May of 2009.

One of 2 surveys was sent to students as determined by their academic level. The survey sent to third- and fourth-year students (clinical) contained questions pertaining to clinical rotations in addition to the questions asked of first- and second-year students (preclinical). Students were queried on 5 Pharma-related issues, including exposure, the appropriateness of accepting various gifts, skepticism toward marketing and its impact, relevant curricular content, and awareness of professional associations' policies on conflicts of interest. Data were also collected on age and gender.

Pharma Exposure

Students indicated their exposure to 9 different student-Pharma interactions. Clinical students were asked if they had received specific Pharma gifts, how often they were exposed to Pharma representatives during different specialty rotations, and how often they were exposed to Pharma representatives at the school's 5 major clinical rotation sites.

Appropriateness of Gift Acceptance

An 11-item assessment measured student perceptions on the appropriateness of accepting various Pharma gifts. A 5-category Likert scale was used, ranging from 5=extremely appropriate, 4=very appropriate, 3=somewhat appropriate, 2=not too appropriate, and 1=not at all appropriate. For graphing purposes, responses indicating "extremely appropriate" and "very appropriate" were combined, as were those indicating "not too appropriate" and "not at all appropriate."

Skepticism Toward Pharma Marketing and Its Impact

Skepticism toward Pharma marketing was measured using an 8-item assessment. Once again, a 5-category Likert scale was used, ranging from 5=extremely to 1=not at all. A category of "not sure" was included for 5 questions based on feedback during pilot testing. For graphing purposes, responses indicating "extremely" and "very" were combined, as were those indicating "a little bit" and "not at all."

Curricular Coverage of Physician-Pharma Interactions

Four questions assessed students' perceptions of UWSMPH's curricular offerings on physician-Pharma interactions. To address additional sources of influence, clinical students were asked if they had discussed the topic with a resident/attending physician or a fellow medical student. Students also indicated if they believed faculty members should be required to disclose financial-based Pharma conflicts of interest prior to delivering lectures for required classes. The same question was asked with regard to extra-curricular activities, such as optional lunchtime talks or student-initiated events.

Table 1. Interactions between Medical Students and Pharmas

Type of Gift or Event	% of Preclinical Students who Received a Gift or Participated in an Event (N=167)	% of UW Clinical Students who Received a Gift or Participated in an Event (N=181)	% of Third-year Medical Students Nationally who Received a Gift or Participated in an Event
A book donated by a Pharma	7.2[a]	42.5[a]	51.0
Attended a workshop sponsored by a Pharma	3.6[a]	29.8[a]	25.9
Participated in a marketing survey sponsored by a Pharma	2.4	5.5	3.5
Participated in research sponsored by a Pharma	2.4	4.4	2.7
Nominated for or received an award sponsored by a Pharma	0.6	6.6	0.6
Attended a conference with travel expenses paid by a Pharma	0.6	5.5	1.8
Attended a conference with the registration fee paid by a Pharma	0.6	3.9	4.5
Obtained a research fellowship or grant sponsored by a Pharma	0.6	0	0.5
Approached a Pharma representative to request funding for an event	0.6	0.6	—
Received lunch from a Pharma	—	70.2	96.8
Ate a snack provided by a Pharma	—	66.9	89.1
Received a small non-educational gift (e.g., pen, coffee mug) from a Pharma	—	55.8	94.1
Received dinner from a Pharma	—	25.4	50.6
Attended a seminar or educational event provided by a Pharma	—	13.3	—
Received a medication sample provided by a Pharma	—	12.7	41.9

Pharma=Pharmaceutical Company
[a]*P*=<.001 (comparisons made only between preclinical and clinical students at University of Wisconsin School of Medicine and Public Health and only when a sufficient number of responses [>5] allowed χ^2 values to be computed)

Professional Association Policy Awareness

Students indicated their familiarity with the policies of the American Medical Student Association, American Medical Association, and the Wisconsin Medical Society that regulate physician-Pharma interactions. A 5-category Likert scale was again used, ranging from 1=not at all familiar to 5=extremely familiar. Students also indicated if they were members of these organizations.

Statistical Analysis

Data from the survey were transferred to Microsoft Excel (Microsoft Corp, Redmond, Wash) and SPSS (SPSS Inc, Chicago, Ill). Responses were coded 1-5 according to the aforementioned representations. T-tests were used to compare data between preclinical and clinical students on measures of appropriateness and skepticism. Chi-square tests were used to compare exposures within specialties, at different clinical sites, and between preclinical and clinical students. Questions that had "not sure" as a possible response were analyzed using both χ^2 tests and t-tests.

RESULTS

Demographics

The overall response rate was 53.6% (348/649). Preclinical (167/319, 52.4%) and clinical (181/330, 54.8%) classes had similar response rates. The average age of respondents was 24.9 and 26.7 years for preclinical and clinical students, respectively. These ages were consistent with those of the student body, where the average age was 25.15 and 27.35 years for the same groups. Among respondents reporting gender, 53.5% (182/340) were female, compared to 53.8% in the student body.

Pharma Exposure

Student interactions with Pharmas are shown in Table 1. Clinical students had greater exposure to Pharma marketing than preclinical students but considerably less exposure than third-year students from the 2003 national survey.[19] Among clinical students, 51.1% (90/176) reported being asked or required to attend a Pharma-provided meal by an attending physician or resident.

During specialty rotations, the percentage of students who reported interactions with Pharma representatives was 72.5% (121/167) in family medicine, 44.0% (73/166) in internal medicine, 35.9% (60/167) in obstetrics and gynecology, 24.1% (40/166) in surgery, 17.0% (28/165) in pediatrics, 15.8% (25/158) in psychiatry, 8.8% (13/147) in neurology, and 8.5% (5/59) in emergency medicine. Results of a χ^2 test revealed that students in family medicine ($P<.001$) and internal medicine ($P<.001$) had more Pharma interactions than students in other specialties.

Student-Pharma interactions at different clinical sites ranged from 6.9% (2/29) to 81.3% (87/107). Three locations remote from the main campus had significantly more interactions ($P<.001$, $P<.05$, and $P<.05$) than other hospitals and clinics.

Appropriateness of Gift Acceptance

Data on the perceived appropriateness of various Pharma gifts are presented in Figure 1. Clinical students ($\mu=2.69$) felt it was more appropriate than preclinical students ($\mu=2.39$) to accept meals from Pharmas ($P<.05$). The majority of all students felt it was inappropriate to accept a vacation package, a gift greater than $50, an expenses-paid social outing, covered travel costs to a conference, or small, non-educational gifts. Free meals, textbooks, medication samples, grants for student-initiated events, and sponsored research were viewed with greater acceptance, as <50% of respondents felt these gifts were inappropriate.

Skepticism toward Pharma Marketing and its Impact

Data on student skepticism toward Pharma marketing and its impact are shown in Figure 2. Chi-square tests revealed significant differences between preclinical and clinical students on 3 questions related to the use of Pharmas as educational resources (Figure 2). Preclinical students responded "not sure" to these questions more frequently (ranging from 43.4% to 65.4%) than clinical students (ranging from 11.9% to 22.0%). When responses indicating "not sure" were excluded from analysis, neither t-tests nor χ^2 tests revealed significant differences between these groups.

Students from all classes believed Pharmas had little effect on medical students, that gifts would not increase their chances of prescribing a sponsor's medications, and that the school should exclude Pharma representatives from meeting with students. Results of a paired samples t-test revealed that students ($\mu=1.65$) felt their classmates ($\mu=1.90$) were more likely to be influenced by Pharma gifts than they were themselves ($P<.001$).

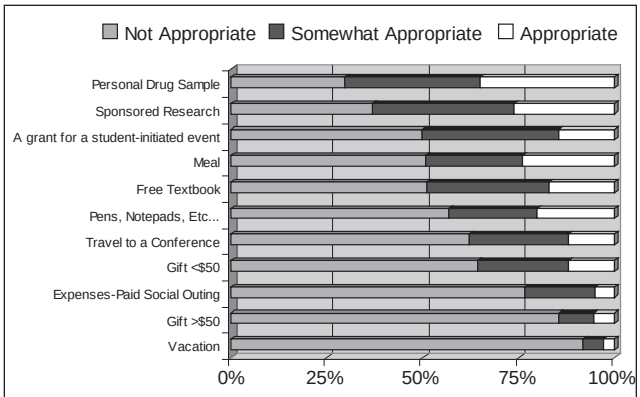

Figure 1. Response of students to 11 survey questions probing their perceptions on the appropriateness of various pharmaceutical company gifts.

Curricular Coverage of Physician-Pharma Interactions

Students felt the school had provided them with little information about physician-Pharma interactions. Seventy-eight percent (261/336) of respondents reported they had received limited instruction on how to interact with Pharma representatives, and 71.3% (239/335) felt they were minimally informed about relationships between physicians and Pharmas.

Some preclinical (60/165, 36.4%) and most clinical (118/181, 65.2%) students reported attending presentations on physician-Pharma interactions, many of which (145/170, 85.3%) took place during extracurricular activities. Among clinical students, 69.9% (121/173) had discussed the pros and cons of Pharma gifts with a resident/attending physician, and 87.5% (154/176) had discussed the same question with a fellow medical student.

Most students (280/335, 83.6%) believed that faculty should be required to disclose Pharma financial-based conflicts of interest prior to delivering required lectures. Similar results (266/332, 80.0%) were obtained when students answered the same question with regard to extracurricular activities.

Professional Association Policy Awareness

Among respondents reporting membership to professional organizations, 28.8% (95/330) belonged to the American Medical Student Association, 37.2% (124/333) to the American Medical Association, and 51.2% (170/332) to the Wisconsin Medical Society. The percentages of students who were familiar with each organization's policy on interactions between physicians and Pharmas were 6.3% (21/336), 2.4% (8/336), and 2.7% (9/338), respectively.

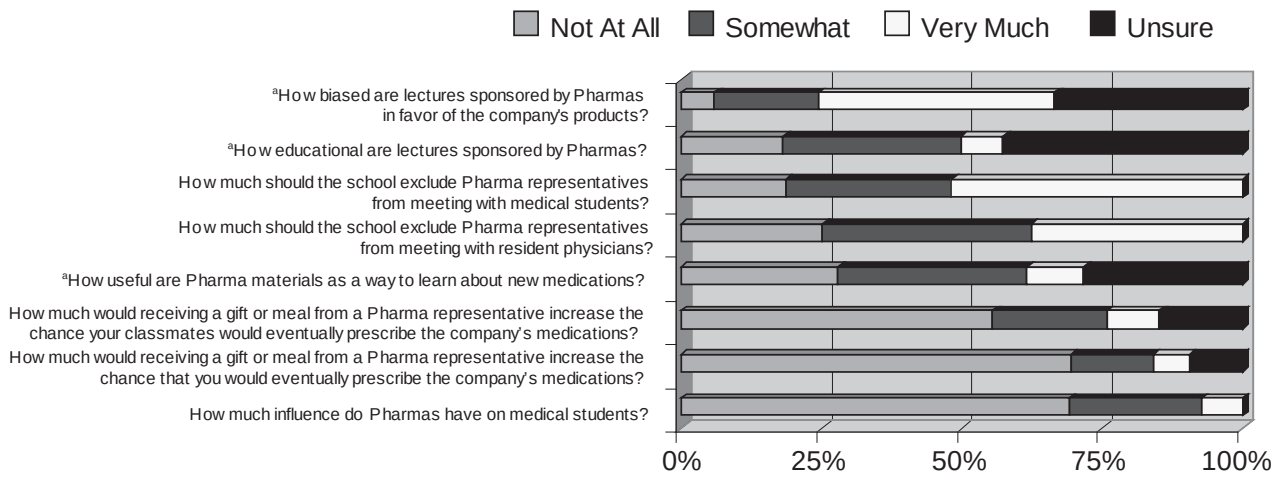

Figure 2. Response of students to 8 survey questions probing their degree of skepticism toward pharmaceutical company marketing.
[a]=Questions that had significantly different response proportions between preclinical and clinical students, *P*<.001.

DISCUSSION

Medical students can be powerful advocates for their patients and the health care system that they will inherit. For example, the American Medical Student Association has played a major role in stimulating a new dialogue about physician-Pharma interactions via the PharmFREE Scorecard, a rigorous assessment of industry-medicine interactions and conflict-of-interest policies at academic medical centers across the United States.[35] This increasing concern has culminated in the Physician Payment Sunshine Act (S:301), which proposes to create a uniform national code of conduct. Thus, this study, which provides data on current medical student attitudes, policy awareness about Pharmas, and exposure to their influence, is of particular relevance.

The vast majority of clinical students at UWSMPH were involved in Pharma interactions, albeit less frequently than students sampled in the national survey.[19] This may be due to increased scrutiny in the popular press,[36] current attention nationally,[37,38] and established or pending policies at UWSMPH and its associated hospitals and clinics. Not surprisingly, preclinical students were involved in fewer Pharma interactions than clinical students, which is attributable to the preclinical years being devoted primarily to classrooms and labs. Also, in a finding consistent with that of previous studies,[10,39] the greatest number of student-Pharma interactions took place in primary care settings.

In spite of fewer interactions, students continue to be at-risk. Most respondents failed to recognize that they could be susceptible to the effects of Pharma marketing, which leaves them more vulnerable to its impact.[29-30] Students felt their classmates were more likely to be influenced by gifts than they were themselves, and most respondents stated that Pharmas have little or no impact on medical students. A significant number of students displayed contradictory lines of reasoning when asked about the appropriateness of gifts, simultaneously believing it was inappropriate to accept gifts of any monetary value but permissible to accept meals and textbooks or take part in sponsored research.

Students from different classes held similar attitudes toward Pharmas with 2 exceptions. First, preclinical students felt it was less appropriate than clinical students to accept meals from Pharmas. This finding corroborates the claim of Fitz et al[34] who noted a similar trend toward greater acceptance of Pharma gifts during the clinical years. Second, clinical students held stronger beliefs than preclinical students regarding the validity of information provided by Pharmas. A number of students from all classes expressed uncertainty on this topic, which is noteworthy considering previous research has shown that Pharmas provide inaccurate and biased information.[40]

Beginning last year, a lecture dedicated to the topic of physician-industry interactions was added to the curriculum of second-year students at UWSMPH. This was clearly an appropriate addition as surveyed students felt unprepared to deal with Pharmas. Given the high number of interactions that took place remote from the main campus and the inherent difficulty in limiting these interactions, it is particularly important that preclinical students be educated on the topic. To optimize the use of the new lecture on physician-industry interactions, we recommend administering a brief exit survey to assess student reactions and guide future lecture content. In

addition to the demonstrated need for further education on the biased nature of Pharma-provided information, a small-group session would facilitate discussion and provide students with an opportunity to ask instructors specific questions.

There are some limitations to our study. Only slightly more than half of all students responded to the survey, which calls the generalizability of our results into question. However, with similar demographics between responders and non-responders, it appears there was a well-distributed sampling of students. Also, because we did not use an exact copy of the survey distributed in the national study,[19] comparability between the data sets is somewhat limited. This is particularly true of portions that dealt with student attitudes, as these sections underwent the largest modifications.

CONCLUSIONS

While the number of student-Pharma interactions at UWSMPH was lower than schools sampled in a prior national survey, there are still a significant number of interactions between these groups, particularly at sites remote from the main campus. Students continue to be at risk to Pharma influence, and additional guidance from the school is necessary.

Acknowledgments: The authors wish to thank Jane McGann and Chris Stillwell for their help in administering the survey. Additional thanks go to the personnel of the Wisconsin Survey Research Center for their help in formatting the survey.
Funding/Support: None declared.
Financial Disclosures: Cody Soyk received grant support from the Shapiro Foundation at UWSMPH.

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Treatment of Intractable Hip Pain after THA and GTB Using Peripheral Nerve Field Stimulation: A Case Series

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ABSTRACT

Objective: It has been estimated that 10%-35% of patients who undergo total hip arthroplasty (THA) have chronic postoperative pain, most often located at the greater trochanter. After greater trochanteric bursectomy (GTB), patients also may continue to experience chronic surgical site pain. Chronic pain has a neuropathic component, which often responds poorly to opioids. In an attempt to provide increased pain relief for patients with intractable chronic pain, unconventional agents and interventional management approaches have received considerable attention. Peripheral nerve field stimulation (PNFS) has been used with increased frequency as a minimally invasive and safe intervention for the management of intractable neuropathic post-operative pain. The objective of this retrospective study was to evaluate the efficacy of PNFS for treatment of chronic hip pain after THA and GTB.

Methods: Twelve patients with chronic post-operative pain after THA and GTB underwent an uneventful PNFS trial with percutaneous placement of 2 temporary 8-electrode leads (Medtronic Inc, Minneapolis, Minn) positioned in the subcutaneous tissue in the area of greatest pain, parallel to postoperative scar over the affected upper lateral thigh.

Results: After experiencing excellent pain relief over the next 2 days, the patients were implanted with permanent leads and rechargeable or non-rechargeable generator 2-4 weeks later. They reported sustained pain relief at 12-month follow-up visits.

Conclusion: PNFS provides an effective alternative treatment option for select patients with chronic post-operative pain after THA and GTB who have failed conservative treatment.

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INTRODUCTION

The incidence of chronic pain as an outcome of surgery following many procedures—including amputation, mastectomy, thoracotomy, sternotomy, cholecystectomy, inguinal hernia repair, dental procedures, vasectomy, prostatectomy, knee meniscectomy and total joint replacement—is well documented.[1,2] More than 10% of patients who undergo joint replacement continue to experience pain at the affected joint.[3,4] A study including more than 1200 patients who had undergone total hip arthroplasty (THA) reported that 28% of patients had ongoing pain at the surgical site at 12 to 18 months follow-up, and more than 12% had pain that limited their daily activities to a moderate, severe or very severe degree.[3] Another study of patients who had undergone THA reported the incidence of chronic post-operative pain to be as high as 16% when patients were seated and 35% when walking, with a duration of post-operative follow-up ranging from 42 to 171 months.[5]

The etiology of chronic pain in THA, like other chronic pain syndromes, is multifactorial and presumably due to neuropathic,[1] nociceptive,[6] and psychosocial[7] components. Pain following greater trochanteric bursectomy (GTB) and THA is most often located in the trochanteric area and is described as neuropathic burning with dysesthesia and allodynia.[3] Neuropathic pain is known to respond favorably to neuromodulation therapy and poorly to opioids. Peripheral nerve field stimulation (PNFS) has been used to treat a variety of neuropathies,[8] including ileoinguinal,[9] occipital,[10-13] post-herpetic,[14] intercostals,[15] trigeminal postherpetic neuralgia and trigeminal

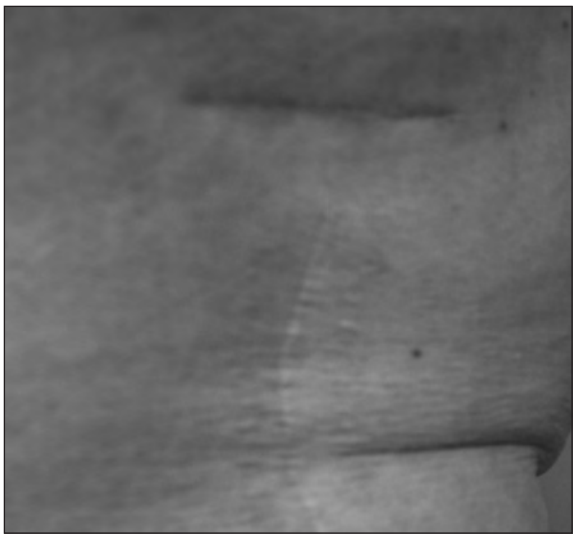

Figure 1. Post-surgical scar at upper lateral thigh at the area of maximal pain.

posttraumatic neuropathic pain,[16-18] headaches,[19] and back pain[20-24] with excellent relief of pain and reduced need for oral pain medications.

MATERIALS AND METHODS

Twelve patients with persistent post-operative pain after THA and GTB underwent a PNFS trial between April 2006 and May 2008. The objective of this retrospective study was to evaluate the efficacy of PNFS for treatment of chronic hip pain after THA and GTB. Ten patients were female (83.3%), and 2 were male (16.6%). Their ages ranged from 57 to 72 years, with a mean age of 65 years. All of the patients had over 12 months pain duration. No patients were involved in active litigation. A distant history of drug and alcohol abuse was noted in 3 (25%) patients. All patients had previously failed conservative therapies including physical therapy, Transcutaneous electrical nerve stimulation (TENS), opioid and non-opioid pain medications, and trigger point injections. Four patients (33.3%) had Botox® injections at the hip area. No further surgical interventions were indicated.

The patients described their pain as being constantly burning, aching, and stabbing over the upper lateral thigh in the area of the post-surgical scar (Figure 1). On physical examination, all of the patients had tenderness on palpation over the involved area, with allodynia and hyperpathia along the post-operative scar. Chronic pain medication regimens before and during the trial included 1 or more of the following: gabapentin, pregabalin, darvocet, oxycodone, hydrocodone, morphine, hydromorphone, fentanyl patch, nonsteroidal anti-inflammatory medications, lidocaine patches, and topical ointments. None of these regimens gave the patients significant pain relief. The patients did not use any alternative pain modalities, such as acupuncture. Each patient was counseled on treatment options including continuing with current treatment or trying PNFS therapy. Patients elected to proceed with PNFS therapy.

All patients underwent a successful 2-day trial of percutaneous placement of 2 8-electrode Standard Octad Leads (Medtronic Inc, Minneapolis, Minn) after passing a psychological evaluation for an implantable device and signing informed consent. After local infiltration of 1% lidocaine, 2 14-gauge Tuohy needles were advanced in the subcutaneous tissue in the area of greatest pain, parallel to the postoperative scar over the affected lateral thigh. Leads were advanced through the Tuohy needles, and then the needles were removed while the leads stayed in position. Leads were then connected to a temporary external stimulator via an extension cord. During the 2-day PNFS trial, the patients reported >50% reduction in visual analog scale (VAS) pain scores.

Two to 4 weeks later, the patients underwent implantation with permanent leads (Figure 2) and generators. Each of the 2 permanent leads were anchored to fibroaponeurotic tissue in the wound, created along the superior aspect of the post-operative THA scar with 2-0 nonabsorbable suture of braided polyester (Ethibond) and Titan Anchors (Medtronic Inc, Minneapolis, Minn). The leads were tunneled to the left or right supragluteal area (based on patient choice) where the subcutaneous pocket was created for the generator (Figure 3). Leads were then connected to RestorePRIME non-rechargeable or RestoreULTRA (Medtronic Inc, Minneapolis, Minn) rechargeable generators. The procedures were performed in an ambulatory surgery center with intravenous sedation and local anesthesia administered by the surgeon. The post-operative courses were uneventful for each patient. Patients reported no side effects from PNFS therapy.

The implanted stimulators were programmed using an alternating electrode configuration with a pulse width of 400 to 450 microseconds and a rate of 50 to 60 Hz. The amplitude use ranged from 0.5 to 5.3 volts.

Electrode polarities were set as follows:

- First lead: 0(+) 1(-) 2(+) 3(-) 4(+) 5(-) 6(+) 7(-)
- Second lead: 8(-) 9(+) 10(-) 11(+) 12(-) 13(+) 14(-) 15(+)

The patients each reported that the stimulation covered 100% of their painful areas following the initial programming.

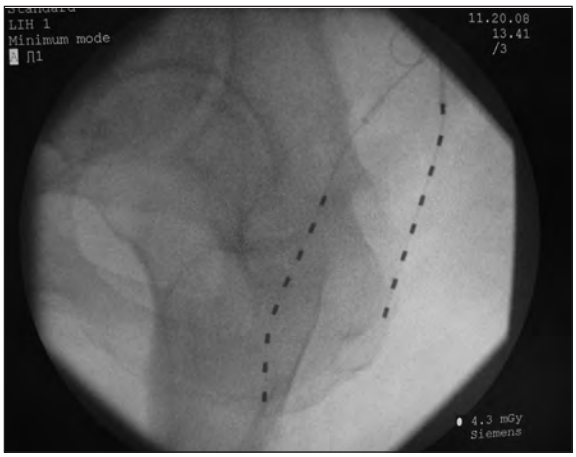

Figure 2. Final position of implanted leads over affected lateral thigh.

Figure 3. The subcutaneous pocket made in supragluteal region for RestoreULTRA rechargeable generator.

RESULTS

No complications were reported during the PNFS trial, permanent implantation and post-operative period. All patients had at least a 50% reduction in pain as assessed by VAS score, where 0 is no pain and 10 is the worst pain imaginable, at 48 hours after PNFS trial. A 50% reduction in VAS was considered clinically significant. Patients were implanted with permanent leads and rechargeable and non-rechargeable generator within 2-4 weeks. Patients reported sustained pain relief at 12 months. Eight patients had reprogramming of PNFS in the first 6 weeks after the surgery. Four patients needed additional training sessions about the use of their recharging devices postoperatively.

VAS scores prior to implant ranged from 6 to 9, with a mean pain score of 7.5. At 12-month follow-up, all patients reported significant pain relief with the permanent stimulator; their VAS scores ranged from 1 to 4, with a mean pain score of 2 (>50% reduction in VAS).

Stimulator parameters were in the same range during PNFS trial. Ten patients (83.3%) were using the PNFS 24 hours per day, adjusting stimulation intensity for changes in intensity of pain with good pain relief. The other 2 patients (16.6%) were turning on the PNFS only during the day hours. All patients were able to decrease or discontinue use of pain medications. Two patients (16.6%) continued to use lidocaine patches, and 1 patient (8.3%) continued to use pregabalin. Patients also reported other positive outcomes, including the ability to return to social, recreational, and sporting activities.

DISCUSSION

PNFS alleviates pain by subdermal stimulation of the peripheral fibers, which may prevent transmission of painful impulses to the central nervous system. The neuromodulating effects of electrical stimulation are based on the tenets of the "gate-control theory" of pain proposed by Melzack and Wall in 1965.[25] Based on this theory, it is hypothesized that PNFS "closes the gate" to pain transmission by activating large-diameter afferent fibers via application of an electric field. PNFS may also alter local blood flow, cause release of endorphins, affect neurotransmitters and axonal conduction, and block cell membrane depolarization.[25] The mechanism of action of PNFS and neuromodulation in general continues to be investigated, since there may be a multitude of ways in which neuromodulation affects pain transmission. A limitation of the study is that this retrospective study design does not include a nonintervention group (control) or quality-of-life measurements, and therefore we cannot decisively determine that the measurable outcome is a result of the PNFS alone.

This retrospective study demonstrates that PNFS may provide a safe, effective, and convenient treatment option for patients suffering from chronic neuropathic pain after THA and GTB. This novel approach for the treatment of this condition may find a niche in the treatment of select patients. PNFS has a number of advantages over many conservative treatments and more-invasive techniques, including a lack of side effects. One reason for the high success rate of PNFS may be that patients are able to test the efficacy of the device prior to implantation. The therapy is completely reversible if for some reason therapy becomes contraindicated or is no longer needed. Additionally, manual programming permits patients to control the level of

stimulation required to control their degree of pain. This enables patients to take a more active role in their pain management.

CONCLUSION

We present the treatment of chronic post-operative pain following THA and GTB that has been successfully treated with PNFS. This technique may be a safe and effective treatment for patients who have failed to find relief with more conservative measures or who are not appropriate candidates for more invasive interventional pain or surgical procedures based on their comorbid health conditions. PNFS has provided patients with satisfactory pain relief without the side effects of previous medication therapy. In our opinion, PNFS offers a safe and effective treatment method that is completely reversible should a patient lose its pain-alleviating effect. These patient outcomes provide support for PNFS as an alternative treatment option for patients with chronic postoperative hip pain and hopefully will inspire interest in prospective studies comparing peripheral nerve field stimulation to other therapies.

Funding/Support: None declared.
Financial Disclosures: None declared.

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HHV-6 Infection in a Case of an Infant with Fever, Seizures, and Shock

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INTRODUCTION

Human herpesvirus 6 (HHV-6), commonly known to cause roseola, is a virus that often establishes latency in early childhood. It has been known to cause serious infection, and HHV-6 encephalitis frequently yields long-term neurologic sequelae. In this case, we discuss an infant who presented with seizures and shock secondary to acute HHV-6 encephalitis and subsequently returned to her neurologic baseline.

CASE DESCRIPTION

A previously healthy 10-month-old white girl presented to a community emergency department (ED) in status epilepticus. She had been in her usual state of health with the exception of rhinorrhea for several days prior to admission. On the night of admission, the patient had decreased appetite, tactile fever, and was fatigued. She was found in her crib covered in emesis with tonic-clonic movements of her extremities. Upon arrival to the ED, she was treated with diazepam and was loaded with fosphenytoin before seizure activity stopped. The patient was intubated for airway protection. Ceftriaxone and vancomycin were initiated for suspicion of sepsis. Blood and urine cultures were obtained, but a lumbar puncture was unsuccessful. She continued to seize and was treated with lorazepam and morphine sulfate, after which the movements resolved. In the pediatric intensive care unit, she received 2 normal saline boluses because of tachycardia and dusky appearance.

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The patient had no significant past medical history except for recurrent otitis media. She was born full-term, normal spontaneous vaginal delivery, and there were no complications with the pregnancy or delivery. She took no medications, had no allergies, and her immunizations were up-to-date. Her growth and development were appropriate for her age. She lived with her parents and 2 brothers, 1 of whom recently had a diarrheal illness. The family had 2 cats, 2 dogs, a turtle and fish. There was no recent travel. She attended day care.

Upon admission to the intensive care unit, she had a temperature of 39.1°C, blood pressure of 101/40, pulse of 164/minute, respiratory rate of 33/minute, and O_2 saturation of 100% on FiO_2 0.6. Her pupils were 1-2 mm and sluggishly reactive bilaterally. Her tympanic membranes were minimally erythematous bilaterally and non-opacified. She had coarse breath sounds throughout. Her extremities were cool bilaterally, and her distal extremities were significantly mottled. She was sedated, and there was no asymmetry on neurologic exam. She moved her extremities spontaneously and had a cough and gag reflex. The remainder of her physical exam was normal.

The patient's white blood cell count was 26.6 K/uL with 70% segmented neutrophils, 12% bands, 17% lymphocytes, and 1% monocytes. The hemoglobin was 12.4 g/dL, and the platelet count 469 K/uL. Blood and urine cultures were negative. Her cerebrospinal fluid (CSF), obtained approximately 24 hours after antibiotics were administered, had 7 total nucleated cells, 273 red blood cells with a differential of 9% neutrophils, 5% lymphocytes, 84% monocytes, and 2% macrophages. CSF glucose was 60, protein 24; gram stain was negative and culture showed no growth; herpes simplex virus (HSV) polymerase chain reaction (PCR) was negative. A head computed tomography scan was normal. Electrolytes, chemistry profile, and disseminated intravascular coagulation panel all were normal. Rapid

diagnostic viral antigen testing for respiratory syncitial virus, influenza A and B, parainfluenza, and adenovirus was also negative.

Because of widened pulse pressure, tachycardia, poor peripheral perfusion, and decreased systolic blood pressures, she was started on milrinone and norepinephrine. She was weaned off these medications by hospital day 2 and was extubated without further seizure activity. She was noted to be agitated at times and not at baseline neurologic status. She remained on cefotaxime and vancomycin because of initial concern for septic shock, but had no further fevers after her initial presentation.

She was transferred to the general medical unit on hospital day 4. At this time she developed a descending erythematous macular rash and had a focal seizure. She had subclinical electrographic seizures on electroencephalogram (EEG), which were successfully treated with phenytoin. A magnetic resonance imaging (MRI) scan of the brain revealed striking abnormalities in the white matter of the left temporal, frontal, and parietal lobes.

The patient underwent repeat lumbar puncture and acyclovir was added for empiric coverage of herpes simplex encephalitis. Subsequent serology was negative for parvovirus, rubella, and measles. CSF PCRs were again negative for HSV and enterovirus.

DENOUEMENT

Antibiotics were stopped on hospital day 6 because the patient did not appear to have a bacterial source of infection. The patient improved and was neurologically normal on hospital day 8. A third lumbar puncture revealed CSF that was negative for HSV, and acyclovir was stopped. She was discharged on hospital day 9, and she continued on phenytoin for seizure prophylaxis. On that day, the HHV-6 PCR from her second CSF collection returned positive. Due to her degree of clinical improvement, initiation of antiviral therapy with foscarnet or ganciclovir for the HHV-6 infection was deferred because the medication risks outweighed the uncertain benefits of treatment.

She was seen in Neurology Clinic 6 weeks post-discharge and at 1 year of age. She had no further seizures and had a normal neurologic examination. Developmentally, she was crawling, cruising on furniture, babbling, and manipulating objects in an age-appropriate manner. These were all tasks she was able to perform prior to her illness. Her EEG was normal in the awake, drowsy, and sleep states. MRI showed resolution of the diffusion-weighted signal abnormalities, and improvement in the T2 signal abnormalities. The phenytoin was tapered, and she remained seizure free. A repeat MRI 8 months post-discharge, when the patient was 19 months, showed no new lesions with very minimal residual T2 changes in the left hemisphere and no diffusion-weighted image abnormalities. Again, the patient had a completely normal examination and was walking and running, had bilateral pincer grasp, was using utensils, and had a 20-word vocabulary.

DISCUSSION

HHV-6 is in the betaherpes subfamily and is a DNA virus that is expressed as 2 variants, A and B.[1] HHV-6B is more prevalent and is commonly recognized as the cause for roseola infantum,[2] while clinical disease manifestations for HHV-6A are not well-defined. Infection with HHV-6 has been associated with neurological sequelae in children.[2] By age 3, HHV-6 has infected most children and is able to persist and establish latency in the monocytes and macrophages.[1]

Primary HHV-6 infection can manifest in different ways. Most commonly, symptoms include fever, irritability, and rash. HHV-6 infection is also frequently associated with the first manifestation of benign febrile seizures in childhood. While these seizures are more commonly related to the febrile response to HHV-6 infection, we speculate that there is a subset of patients who have direct central nervous system HHV-6 infection accounting for the seizures. The frequency of such cases of encephalitis and meningoencephalitis is unclear due to the lack of baseline testing for HHV-6 in children with simple and complex febrile seizures. Additionally, the exact role that HHV-6 plays in neurological infections is not well understood.[3] Neurologic manifestations of the disease can include generalized, repetitive, and prolonged seizures. Ataxia, weakness, hemiplegia, and disturbances in consciousness can also occur. Complications such as meningoencephalitis and encephalopathy can be severe and lead to poor outcomes.[4]

There are various reports of acute encephalitis and meningitis occurring in immunocompetent patients with HHV-6.[5] Crawford et al reported 3 cases of children, 2 of which were documented as previously healthy, with HHV-6 causing rhombencephalitis. Long-term outcomes showed significant volume loss of cerebral hemispheres and cerebellum in 1 child who was ultimately diagnosed with juvenile rheumatoid arthritis-like chronic idiopathic childhood arthritis. One of the previously healthy children suffered asym-

metrical tonicity and reflexes and had pronounced cerebellar atrophy at 1 year after diagnosis. Another child demonstrated significant behavioral difficulties and delayed speech and development at 1-year follow-up.

Yoshinari et al studied 10 children between 8 and 26 months of age, all with previously normal development, who had HHV-6 encephalopathy based on clinical, seroimmunologic, and virologic findings. Of these children, all had seizures before and after their fevers subsided. Long-term outcomes showed 4 patients had intellectual impairment, while 2 developed quadriplegia.[6]

Conclusive laboratory diagnosis of HHV-6 encephalitis may be difficult at times. Elevated serum IgMs may be suggestive of recent infection and possible post-infectious encephalitis, but also may not be causally related to CNS disease. Even positive blood PCRs for HHV-6 do not confirm the presence of this agent in the CNS. To be certain of the diagnosis of active CNS infection with HHV-6, CSF sampling is required, and positive CSF PCRs likely indicate active CNS infection with HHV-6. While CSF PCR is definitive, serum IgM and PCR can be used to help assure the diagnosis prior to starting toxic therapy.

The International Herpes Management Forum recommends the use of foscarnet and ganciclovir, either individually or combined, to treat progressive neurologic disease due to HHV-6 infection.[7] Cidofovir, an acyclic nucleoside phosphonate, has been found to be more inhibitory than ganciclovir or foscarnet in vitro.[8] However, it is unclear how well it crosses the blood brain barrier and has associated drug toxicities, so at this time it is not recommended for treating HHV-6 related infections.[9]

Compared to the poor outcomes demonstrated by the children reported thus far in our references with HHV-6 encephalitis, our patient has exhibited no apparent long-term sequelae. This suggests that HHV-6 encephalitis can be associated with a wide range of clinical outcomes, from long-term neurologic sequelae to a benign post-infectious clinical course. Further baseline testing for HHV-6 in children with suspected encephalitis will need to occur to determine the spectrum of disease associated with HHV-6 CNS infections. Improved knowledge of the spectrum of disease and neurologic outcomes for HHV-6 encephalitis will also help to guide antiviral therapy decisions based on clinical severity.

CONCLUSION

It is important to consider HHV-6 encephalitis as a diagnosis in children who present with fever, convulsions, and symptoms of shock. Timely diagnosis may prevent unnecessary prolonged treatment with empiric antimicrobials, and also guide the appropriate acute and long-term follow-up plan.

Funding/Support: None declared.
Financial Disclosures: None declared.

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Seeding new ideas in adolescent eating habits

Gayathri Chelvakumar, MD; Elizabeth Kessler, MD

Adolescence is a time of intense growth and development with nutritional vulnerability. As adolescents become more independent, they begin making their own meal and snack choices, and there tends to be a decrease in healthy eating habits. Adolescents have been shown to have an increased consumption of sweetened beverages and fast foods high in fat as well as a decreased consumption of fruits, vegetables, and dairy products.[1] In Milwaukee, survey data collected by the Milwaukee Public Schools indicate that 37% of students are overweight or obese.[2] Educating adolescents about healthy eating habits and increasing their exposure to healthy foods could help promote healthier nutritional behaviors and lead to a decrease in overweight/obesity and related health consequences like heart disease and diabetes.

During a pediatric residency research elective in July and August 2009 under the guidance and mentorship of Earnestine Willis, MD, we embarked upon an observation of potential barriers to healthy eating by speaking with community-based organizations that promote healthy lifestyles among adolescents and by visiting local food distributors (supermarkets, convenience stores, corner stores, farmers markets). Limited access to healthy and nutritious foods, particularly fresh produce, and the accessibility of fast food restaurants were identified as barriers to adolescents' healthy eating.

We identified and visited 9 local food distributors in Milwaukee's central city most frequented by low-income families because they were in close proximity to community-based organizations with youth programming and adolescents were observed to frequent these stores. The large majority of stores visited were locally owned corner stores that are similar to convenience stores but located in a residential area. Recent studies have shown that a significant portion of urban children's caloric intake comes from these stores.[3]

In assessing the food products available at corner stores, we observed that while all stores had some selection of canned vegetables and fruits, there were limited sources of fresh fruits and vegetables. Most corner stores had a small selection of fresh fruits and vegetables that was often difficult to find because it was located at the ends of aisles, toward the back of the store. At the front of the store, however, sweetened beverages, soda, and high calorie foods such as chips and candy bars were prominently displayed. In comparison, supermarkets had a wider variety and supply of fruits and vegetables and the quality and price was superior to corner stores. However, these supermarkets still had high calorie beverages and snacks located near the store's entrance.

A promising component of our observations was the amount of local gardening projects based in Milwaukee's neighborhoods. These grassroots movements are becoming areas of neighborhood promotion of fresh fruits and vegetables. Notable examples include the garden project by Walnut Way Conservation Corp and the large urban farm run by Growing Power, Inc.

Walnut Way is a resident-led, community development organization serving the Milwaukee central city neighborhood whose mission includes transforming vacant, debris-filled lots into productive gardens and orchards.[4] Growing Power, Inc consists of a large urban farm and community food center that provides hands-on training, on-the-ground demonstration, outreach and technical assistance through the development of Community Food Systems, which help people grow, process, market and distribute food in a sustainable manner.[5]

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Both Walnut Way and Growing Power have programs that expose area youth to gardening/farming and working with fresh fruits and vegetables. Research suggests that youth garden programs have the potential to increase youth's willingness to try new foods and eat more fruits and vegetables, but further study is needed.[6] In addition to these grassroots movements, there are also inexpensive fruit and farmers markets that provide a large variety of fresh fruits and vegetables. Opportunities may exist for neighborhood high schools and corner stores to partner with these local grassroots programs to increase adolescents' access to healthy foods.

As part of this project, we provided a nutrition promotion presentation to 27 Milwaukee youth, ages 9-12 at various Boys and Girls Clubs. We gave a 1-hour interactive PowerPoint presentation to review the food pyramid, portion size, healthy snacking, and physical activity recommendations. Additionally, we prepared a nutritious snack with the participants and brought in common packaged food items to demonstrate how to read nutrition labels. Youth seemed familiar with the new food pyramid and current nutritional guidelines but lacked knowledge regarding appropriate portion sizes, physical activity as it relates to caloric expenditure, and the importance of regular meal consumption. After our talks, a post-presentation survey indicated immediate improvement in the participants' nutrition knowledge. The next step becomes bridging the gap between knowledge of healthy eating behaviors and the actual implementation of these healthy behaviors, which is largely dependent on the availability of nutritious foods.

So what then is the role of the medical professional in promoting greater access to fresh fruits and vegetables for Wisconsin's adolescents? From our observations, it appears that children and adolescents are willing and eager to eat better. The challenge is to reach out not only to children but also to parents, promoting healthy eating behaviors at health checks, advising on healthier food choices, shopping at farmers markets and promoting engagement in local gardening projects. Health care professionals must recognize and acknowledge that families face social and economic factors that limit their access to healthy foods, and we must work together with parents, patients, and community-based organizations to promote and address healthy eating behaviors despite access issues.

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Research effects of CPR performed by bystanders and more

Kari B. Haley, Medical College of Wisconsin

As a recipient of a Wisconsin Medical Society Foundation Summer Fellowship in Government and Community Service, my objectives were to learn more about how the Milwaukee County Emergency Medical Services (EMS) system works, have the opportunity to perform research, and meet mentors who could help guide me toward my ultimate career goal of being an academic emergency medicine physician. My experience provided me with the opportunity to accomplish all of this and more.

During my fellowship last summer, I conducted a study titled "Case study of cardiopulmonary resuscitation (CPR) performed by bystanders on patients who are not in cardiac arrest." This project aimed to determine the frequency of misidentified cardiac arrest within the Milwaukee County EMS system from 2003-2009 and to quantify and characterize deleterious effects a person who is not in cardiac arrest may experience from receiving CPR.

I gathered both EMS data and hospital data for all patients who fit this criteria and am currently working with E. Brooke Lerner, PhD, and Ronald Pirrallo, MD, MHSA, to analyze the data and prepare a manuscript. Our abstract was accepted to the National Association of Emergency Medical Service Physicians annual meeting in January 2010, where I presented a poster highlighting our work. I also presented at the Medical College of Wisconsin medical student research poster session.

My fellowship also gave me the opportunity to participate in a program of the Injury Research Center at the Medical College of Wisconsin where I learned more about the burden of injury in Milwaukee County and how physicians, community organizations, law enforcement and politicians can work together to help reduce this burden. Additionally, I was able to participate in a disaster drill for Milwaukee County and Froedtert Hospital, shadow Dr Pirrallo in the emergency department at Froedtert Hospital, observe an Institutional Review Board full committee meeting at the Medical College of Wisconsin, and observe Milwaukee County EMS during an ambulance ride-along. Finally, the fellowship allowed me to meet and interact with emergency medicine physicians, paramedics, trauma surgeons, and others involved with the system of care for patients who suffer from injury.

Beyond having a better understanding of what it means to be involved in emergency medicine and how to conduct a research study, I learned an entirely new way of thinking about injury and how people cope with it, both in the medical field and at-large in the community. I have a better understanding of the coordination and cooperation involved in establishing a system of care that ranges from pre-hospital interventions to rehabilitation.

The Wisconsin Medical Society Foundation Summer Fellowship in Government and Community Service gave me the opportunity to get involved in my chosen career early in my medical education. I've gained knowledge of life beyond medical school and have experienced examples of how I may combine medical care, research, and community involvement in my future career. Most importantly, the experience reenergized my desire to reach high during the rest of my medical education so I can achieve my goals and apply what I have learned.

The goal of the Wisconsin Medical Society Foundation's Summer Fellowship in Government and Community Service Program is to provide medical students a public health research opportunity within a Wisconsin community. The experience exists to educate students about ways in which the medical profession can work to improve health through connections to both community organizations and government. Each student receives a $3500 stipend. The fellowships require the support of donors to make the experience possible and physician mentors who help guide and foster students' projects.

In 2009, the Foundation provided 6 fellowships, which will be highlighted in the *Wisconsin Medical Journal* throughout the year. For more program information and sponsorship opportunities, please contact Foundation Executive Director, Rebecca Thompson, CPA, at rebecca.thompson@wismed.org.

Jonathan I. Ravdin, MD

Dean's Corner

Local response to infectious diseases facilitated by resources and preparedness

Jonathan I. Ravdin, MD
Dean and Executive Vice President, Medical College of Wisconsin

The ability to effectively respond to a biological crisis hinges on successfully identifying the threat. While the World Health Organization was declaring the first influenza pandemic in 41 years, the Medical College of Wisconsin (Medical College) was developing tools to differentiate and diagnose the flu subtypes of patients in Milwaukee, which last year experienced 1 of the largest outbreaks of novel swine origin influenza virus (SOIV) in the country.

This outbreak of novel influenza A (H1N1) virus occurred in late April 2009, and the Medical College's Midwest Respiratory Virus Program (MRVP) responded with multiple assays and already developed, state-of-the-art technology newly created by Kelly J. Henrickson, MD, Professor of Pediatrics and Microbiology at the Medical College, and the Respiratory Virus Program team. One of these (FluPlex, a rapid multiplex, reverse transcription polymerase chain reaction enzyme hybridization assay) can simultaneously detect and distinguish between influenza A and B viruses and identify all influenza A virus subtypes that have infected humans. It additionally is able to delineate the human and animal variants. The test was used to confirm the diagnoses of the first patients in Wisconsin infected with the 2009 H1N1.

In just the first 2 weeks of the Milwaukee outbreak, FluPlex correctly identified 206 clinical samples as positive or negative and correctly typed and subtyped viruses from the positive samples. Importantly, its accuracy was confirmed when results were compared with assays validated by the Centers for Disease Control and Prevention (CDC) and approved by the Food and Drug Administration (FDA).

Rapid and accurate detection is critical for initiating the appropriate public health response to emerging infectious diseases. With knowledge of H1N1 limited at the time of outbreak, the fast, effective and inexpensive tests developed by the MRVP allowed health care professionals at Froedtert Hospital and Children's Hospital of Wisconsin, and eventually elsewhere in the state, to better manage their patients and limit the virus's transmission.

Swift local surveillance is a key component to curbing an outbreak and potentially preventing an infectious disease from reaching epidemic or pandemic levels. Although the H1N1 virus became pandemic, efforts to quickly diagnose and treat infected patients likely decreased morbidity and mortality rates.

The latest efforts in Dr Henrickson's lab have been directed at automating the FluPlex test, which has met with initial success. This example of ongoing innovation demonstrates an academic medical center's ability to develop resources that benefit medicine and protect the public's well-being. We regard that ability as a responsibility, which is why the Medical College also supports a research resource whose programs focus on defense against infectious diseases.

The College's Center for Biopreparedness and Infectious Diseases (Center) was established in 2003 and continues to meet the need for developing diagnostics, therapies and vaccines to combat select agents and chronic and emerging infectious diseases. Directed by Dara Frank, PhD, Professor of Microbiology and Molecular Genetics, the Center emphasizes threats considered especially problematic for the future of Wisconsin and the nation.

Core faculty are engaged in research to address the mounting challenge of antibiotic resistance, to understand the mechanisms that enable bacterial survival

and proliferation in tuberculosis infection, to prevent hospital infections including ventilator-associated pneumonia, and to develop a successful vaccine for Lyme disease. Our efforts encompass global health, including novel research focused on design and testing of a vaccine to protect at-risk international populations from amebiasis.

Research in the Center is translational and patient-focused. In many cases, it is informed by clinical knowledge. Center investigators are building strong relationships with infectious disease clinicians, which keeps research on task with public needs and keyed in to new observations.

A clinician's window to the public is essential for timely infectious disease response. In the last few years, it was community physicians who alerted researchers when methicillin-resistant *Staphylococcus aureus* (MRSA) began appearing in the general population, rather than remaining limited to hospitalized patients with compromised immune systems, for example. These reports created research opportunities to determine what changes allowed the organism to enter the community.

Such interactions form the essence of a local response network, the fundamental basis of which can be successful on a much larger scale. The Center is part of the Region V Great Lakes Regional Center of Excellence. In this role, the Medical College pledges to grant access to our facilities in the event of a regional biological threat. If activated, the Center could arrange laboratory space, provide and run high containment labs, and interface with local or national agencies. We may securely store samples, as we have previously done, or even offer direct assistance for select bioagents and diseases in which our faculty have special expertise.

Our Center is reaching critical mass, and through informed research, coordination with clinical peers, and scientific innovation, we are poised to grow as a critical defense mechanism for the public against biological threats both natural and malicious.

Wisconsin makes significant changes to HIV consent and disclosure requirements

Lora L. Zimmer, JD

Is it time to recycle your HIV consent forms? On May 6, 2010, Wisconsin laws related to consent for HIV testing and disclosure of results significantly changed, eliminating the need for a separate written consent for HIV testing.[1] Under the new law, physicians and other health care providers may conduct HIV testing after giving a patient the opportunity to opt out, but no written consent is required. A number of other changes to the law related to HIV testing and disclosure of test results have also been made.

History

The new law was a result of a bipartisan effort to bring Wisconsin law in line with current recommendations from the Centers for Disease Control and Prevention (CDC) designed to remove barriers to testing and promote earlier diagnoses. In 2006, the CDC began recommending that health care providers exercise "opt-out screenings," in which an HIV test is performed after notifying the patient that it will be performed unless he or she elects to decline or defer the testing.[2] In this type of opt-out screening, assent is inferred unless the patient specifically declines testing, and no specific written consent is needed.

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According to testimony given in support of the new law, by January 2010, 42 states had adopted laws allowing for this informed consent procedure, with Wisconsin being 1 of the 8 exceptions.[3] The new law brings Wisconsin in line with the majority of states in the country and with CDC recommendations.

Procedure for Obtaining Consent

While written consent for HIV testing is no longer required, health care providers (as well as blood banks, blood centers or plasma centers) must ensure that certain requirements are met. First, patients must be notified that the test will be performed and that they may decline it.[4]

Second, the provider must offer the patient a brief oral or written explanation or description of HIV infection, HIV test results, requirements for reporting HIV test results, treatment options for a person who has a positive result, and services provided by AIDS service organizations and other community-based organizations for persons who have a positive HIV test result.[5] While this seems like a great deal of information to provide, the law also requires that the Wisconsin Department of Health Services make materials available to providers that include this required information.[6]

Third, if the patient declines the test, the provider may not use that fact as a basis for denying services or treatment to the patient.[7]

Fourth, the provider must give the patient an opportunity to ask questions and to decline the test.[8]

Finally, the provider must verify that the patient understands an HIV test will be performed and must verify that the patient's decision regarding whether to have the test is not coerced or involuntary.[9]

Significant Exposure and Testing Without Consent

The new law has also changed the rules on "significant exposure" testing—circumstances under which HIV testing may be performed without the consent of the individual being tested, for the benefit of a person who has been significantly exposed to the individual's bodily fluids.

Wisconsin law already had allowed for involuntary HIV testing and disclosure of results under certain circumstances, including when health care providers have a significant exposure to the bodily fluids of an individual under circumstances that might allow for HIV transmission. This area of law has now been expanded to include so-called "Good Samaritans" who assist an individual at the scene of an emergency or accident. Now, if a Good Samaritan has significant exposure to bodily fluids while rendering assistance to an individual, he or she may request that the individual be tested for HIV, regardless of that

person's consent, and the results of the testing may be disclosed to the Good Samaritan.[10]

Further, state law previously required that individuals tested for HIV in a significant exposure scenario be given the choice of whether to be informed of the test results. Under the new law, however, individuals tested in this situation can be informed of the results, regardless of whether they want to know.[11]

The new law also allows for physician assistants to certify that a significant exposure has occurred.[12] This authority had previously been limited to physicians and advance practice nurse prescribers. Physician assistants also now have the authority to disclose significant exposure information to the state epidemiologist, to administer court-ordered HIV tests, and to receive certain HIV results.[13]

Consent by Minors

The new law also gives greater control to minors over their own HIV testing and the disclosure of those results. Minors who are at least 14 years old now have authority to consent to or decline an HIV test and to authorize disclosure of their HIV test results, regardless of their parents' or guardians' wishes.[14] This authority previously had been in the hands of parents and guardians.

Disclosure of Test Results

New procedures are now in place for disclosing HIV test results, as well. Authorizations for disclosure of HIV test results must contain the name of the patient, the exact information that may be disclosed, the name of the person authorized to make the disclosure, the name of the person to whom the disclosure is authorized, the dated signature of the patient (or the authorized representative), and the time period during which the disclosure is permitted.[15] Health care providers should review their authorization forms and ensure that all of this information is requested.

Further, the mode of HIV transmission must now be provided to the state epidemiologist when reporting a positive HIV test result.[16]

Increased Penalties for Improper Disclosure

Finally, the new law has increased the criminal fine and civil damages amounts for violating prohibitions against disclosing HIV test results without consent and for violating consent requirements for HIV testing.[17]

Conclusion

The new law is designed to streamline HIV testing and make the informed consent procedure less burdensome for physicians and other health care providers while encouraging more patients to be tested. According to the Wisconsin Department of Health Services, HIV infection remains a significant public health problem in Wisconsin. In 2009, new cases of HIV infection in Wisconsin increased by 11% compared to 2008 and have increased by 32% since 2001.[18] It is hoped that these changes to the law will help combat that trend.

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The Surgical Care Improvement/ Heart Failure Project

Jay A. Gold, MD, JD, MPH

Some years ago, the *MetaStar Matters* columns in the *Wisconsin Medical Journal* concerned MetaStar's work on its Surgical Care Improvement Project (SCIP)[1] and its project on heart failure (HF) care.[2] Per its contract with the Centers for Medicare & Medicaid Services (CMS), MetaStar has continued to work in these areas, combining the projects into a single SCIP/HF project. MetaStar is working directly with 5 Wisconsin hospitals to improve care in these areas, but the topic will be of interest to the many surgeons and physicians who work in these areas.

This project seeks to improve care as measured by 9 separate indicators. All 9 are based on strong evidence and are embodied in accepted treatment guidelines; the articles cited above reference many of the relevant studies. The first article also cites strong evidence that surgical care can be improved through adherence to proven practice recommendations and the use of systems of care with redundant safeguards.

Doctor Gold is senior vice president and principal clinical coordinator for MetaStar, Inc. This material was prepared by MetaStar, the Medicare Quality Improvement Organization for Wisconsin, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the US Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy. 9SOW-WI-PS-10-81.

The measures and their rationales follow.

- Inf 1: Surgical patients with prophylactic antibiotics initiated on time—within 1 hour prior to surgical incision (2 hours if receiving vancomycin or fluoroquinolone). The lowest incidence of post-operative infection is associated with antibiotic administration within this window.
- Inf 2: Surgical patients who received prophylactic antibiotics consistent with current guidelines (specific to each type of surgical procedure).
- Inf 3: Surgical patients whose prophylactic antibiotics were discontinued within 24 hours after surgery end time (48 hours for coronary artery bypass graft [CABG] or other cardiac surgery). Administration of antibiotics for more than a few hours after the incision is closed offers no additional benefit to the surgical patient but increases the risk of *C. dificile* infection and the development of antimicrobial resistant pathogens.
- Inf 4: Cardiac surgery patients with controlled 6 a.m. postoperative serum glucose (less than or equal to 200 mg/dL) on postoperative days 1 and 2. Hyperglycemia has been associated with increased in-hospital morbidity and mortality.
- Inf 6: Surgical patients with appropriate hair removal. No hair removal, hair removal with clippers or depilatory is considered appropriate. Shaving is considered inappropriate. Shaving causes multiple skin abrasions that later may become infected.
- VTE 1: Surgery patients with recommended venous thromboembolism (VTE) prophylaxis ordered any time from hospital arrival to 24 hours after surgery. Surgery is associated with over a 20-fold increase in the odds of being diagnosed with VTE, and thromboprophylaxis has been found to have a positive risk-benefit ratio. Appropriate thromboprophylaxis varies depending on the procedure.
- VTE 2: Surgery patients who received appropriate VTE prophylaxis within 24 hours prior to surgery to 24 hours after surgery. The measure definition was based on a technical expert panel recommendation in order to establish a timeframe that would encompass most procedures.
- Card 2: Surgery patients on a beta blocker prior to arrival who received a beta blocker during the perioperative period, defined as 24 hours prior to surgical incision through discharge from post-anesthesia care/recovery area. Discontinuation of beta-blocker therapy in the perioperative period is associated with increased one-year mortality.
- HF 3: Heart failure patients with

left ventricular systolic dysfunction (LVSD) without angiotensin-converting enzyme inhibitor (ACEI) and angiotensin receptor blocker (ARB) contraindications who are prescribed ACEI/ARB at discharge. LVSD here is defined as having a left ventricular ejection fraction <40% or a narrative description consistent with moderate or severe LVSD. ACEI and ARB have been shown to reduce morbidity and mortality in patients with heart failure and LVSD.

Data for this project are reported by participating hospitals each quarter to a central data warehouse. Baseline rates for some of the measures were quite high, but others showed considerable opportunity for improvement. At this point, MetaStar is focusing on the following 5 measures: Inf 1, VTE 1, VTE 2, Card 2, and HF 3.

Unlike many measures that are used in quality improvement projects, these measures depend directly on physician/surgeon decision making. Unfortunately, even where physicians are thoroughly convinced of the rightness of particular medical treatments, patients do not universally receive them. The use of standing orders, protocols, and critical pathways has been found to make it more likely that these best practices will be followed. The use of checklists also is highly recommended.

Teamwork, too, is essential. As we wrote 5 years ago, "a meaningful reduction in surgical complications requires surgeons, anesthesiologists, perioperative nurses, pharmacists, infection control professionals, and hospital executives to work together to make surgical care improvement a priority."[1]

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President's Inaugural Address

Thomas Luetzow, MD, FACEP

Editor's Note: Thomas J. Luetzow, MD, FACEP, was sworn in as the 157th president of the Wisconsin Medical Society on April 16. Below is the text of his inaugural speech.

I want to thank you for the honor and the privilege to serve you as president of the Wisconsin Medical Society.

My presidential focus for the coming year is physicians as patient advocates.

Webster's definition of advocacy is: to support something; to uphold; to press for; to promote; to speak out for; to champion; to defend. I believe advocacy is at the core of who we are as physicians. It is the essence of professionalism—putting someone else's interests before your own. It's not always easy, but it is always important.

With the recent signing of health care system reform legislation, health care reform will truly change. It will take awhile to determine what the final product is. At 2700 plus pages, can any one person grasp all the provisions within? Even the summaries I've reviewed are onerous. No doubt there will be surprises. And we, as patient advocates, will need to investigate, identify and promote solutions that help our patients.

There's an ancient Chinese curse that states: "May you live in interesting times." I'm not sure I can tolerate anything more interesting than the times we are living in now, but we certainly have plenty to advocate for. Other issues we face include the following:

- Professionalism—Despite challenges, we need to maintain the high standards we have set.
- Collegiality—To be effective advocates, we need to unify across all specialties.
- Quality—Errors must be eliminated and cost has to be reduced without decreasing quality.
- Informatics—Proper, accurate and realistic measures must be created. Efficiency is essential for us to use it effectively. And though it may try our patience—especially mine—it is a discipline we must incorporate into every working day.
- Liability reform—It is essential we, as a nation, find a way to eliminate defensive medicine. I believe health care costs could drop dramatically through reform, such as might include a change to the gross negligence standard, which has already happened in some states.
- Payment—Adequate and appropriate compensation is essential for the recruitment of quality physicians!
- Health worker shortage—Our aging population and aging health care work force will compound this problem. Innovative solutions are necessary. Physician recruitment and retention will be critical to truly fulfilling a patient advocacy agenda.

Some of the Society's major issues include:

- Viable county societies
- Membership growth, especially young members. I might add that attracting the younger generation will require the Society to embrace all of the new communications technologies so familiar to them.
- Continued financial stability
- Members' time constraints
- Leadership development

The issues we face can feel overwhelming, but I am confident that by working together we can overcome the challenges before us. And at times, we may have to "buck the system," putting ourselves at risk to champion our patients' needs.

I believe what is good for patients is good for physicians; and what is good for physicians is good for patients. This concept can help guide our efforts. Never feel frustrated in your advocacy, and never stop advocating despite the difficulties it may cause.

When I was a resident in the Army, I repeatedly viewed physicians advocating for their patients, often risking their own careers. When I returned to Wisconsin, I again repeatedly witnessed physicians advocating for patients, and I have done my best to emulate these examples. Even though the vast majority of patients never see our efforts on their behalf, when they do, a special bond is created that goes beyond the treatment itself.

I remember early one morning, I saw a man in Room 20 with chest pain. Myocardial infarction was ruled out but symptoms were not fully explained. With a stress test, an additional level of accuracy could be provided.

Unfortunately, it took 8 hours to get the test result back, which was not good for my length of stay data. At about 5 p.m., the patient leaned against the door frame, arms crossed impatiently and asked, "How much longer, doc?" I responded that I was just awaiting the cardiologist's report. He then asked me when my shift ended. I said 3 p.m. He glanced at the clock, and with a look of embarrassment asked, "Are you here just for me?" I said, "Yes." He responded quietly, "Thanks, doc."

I know many of you fight for your patients on a daily basis, and I applaud your example!

Many times we don't realize that patients do recognize these efforts, but acknowledgment remains unsaid. Two years ago, when I was campaigning for State Assembly, I met many people I had cared for briefly. I did not remember some of them, however, they remembered me, and they thanked me for the care I provided.

The relationship between physician and patient is like no other, and your patients do and will appreciate your efforts. And even if they don't, you can go home at night knowing you did your job, professionally.

As I reflected on the journey that brought me here tonight, I recalled that it began one morning years ago as I left Mercy Medical Center in Oshkosh. Across the parking lot, a familiar voice called out, "Hey, Tom, you like cars?" I assured him I did. Then he recommended that I join the Society's Safe Transportation Committee. "Why?" I asked. "Because you can make a difference," he replied.

I later became Chair of that council and now I stand before you today. I will never forget that encounter with Dr Ken Viste, nor can I thank him.

As a tribute to Dr Viste and his leadership, I direct each of you, my distinguished colleagues, to take the time to recruit physicians to be leaders within both the Wisconsin Medical Society and the medical profession, encouraging them to make a difference as advocates for their patients. We are physician advocates and patient advocacy is job one!

When I was at campaign school, I was told to be able to summarize my comments into one sentence. Tonight, I'd like to leave you with this sentence: We as physicians are and will continue to be the patient advocates!

I want to thank all of you in advance for what is sure to be an interesting year.

Neil Bard, MD, accepts one of two 2010 Physician Citizen of the Year Awards from George M. Lange, MD, FACP, at the Wisconsin Medical Society Annual Meeting. Doctor Bard led the effort to launch the Richland Community Free Clinic.

Two honored with Physician Citizen of the Year Awards for compassionate, patient-centered care

Lisa Hildebrand

Two family physicians accepted 2010 Physician Citizen of the Year Awards for their commitment to the communities where they live and work. Neil Bard, MD, and Peggy Stickney, MD, received the awards in April during the Wisconsin Medical Society's 2010 Annual Meeting in Madison.

Doctor Bard led the efforts to establish a free clinic in his community, while Dr Stickney never knew her commitment to "the most advanced level of clinical and personal care" would have such a tremendous impact.

Two very different nominations told 2 very similar stories. Both offer clear examples of the compassionate care that extends far beyond the exam room and the team approach that forms the basis for patient-centered medical care.

For almost 30 years, Dr Bard has seen the growing number of people uninsured or underinsured in his community, but a volunteer trip to Texas following hurricane Rita hit home to him.

"My wife, Mary, helped me focus on reminding me of the philosophy of the American transcendentalists … who in

their time reminded their citizens that one need not only look to far-away places to serve, one should also look to his neighbors and serve those in need as well," Dr Bard said after accepting the award for his efforts to launch the Richland Community Free Clinic.

Doctor Bard likened the clinic's success to the teams of rowers on Lake Monona: "If we all row individually, we just go around in circles, but when we row together we actually get somewhere." He paid special tribute to generous community members who, he said, "opened their hearts and their wallets to help us financially" and dedicated volunteers who "are a source of great strength."

Medical and lay volunteers care for 40 to 50 people each week.

"This is really the main reason why most of us entered the field of medicine," Dr Bard said. "We're not only helping our community, but we're giving structure to those who wish to serve, and they have come."

Doctor Stickney's nomination came from a patient who not only found answers to her medical questions but also found a partner in health care. The patient thanked Dr Stickney for "taking time"—something that sounds so simple yet is so powerful.

In presenting the award to Dr Stickney, George Lange, MD, said, "Thank you Dr Stickney for reminding us that patients often come to us when they are most vulnerable, and the time we spend with them can have a profound impact, not only as it relates to their medical care, but also on a purely human level."

The nomination had an emotional impact on Dr Stickney as well. "You go to work on a day-to-day basis and you do the best you can, and you feel good about the good stuff you do, but when it comes back at you, it's kind of touching," she said, wiping away tears. "It makes me think back to all of the teachers I've had in the past who've supported my education."

Peggy Stickney, MD, of Hartford accepts her Physician Citizen of the Year Award at the Wisconsin Medical Society's 2010 Annual Meeting in Madison. Dr Stickney was nominated by a patient, who not only found answers to her medical questions but also found a partner in health care.

Doctor Bard also paid tribute to the many people who helped him throughout his career. "When I think about a decision in medicine, there are still these little voices in my head from these mentors encouraging me to do the best job possible," he said. "They still give me comfort and guidance and remind me of the compassion needed to be a good doctor."

2010 House of Delegates Actions on Resolutions and Board Reports

Resolution 1 directed the Wisconsin Medical Society (Society) to encourage health plans in Wisconsin to offer enrollment in invisibleBracelet.org as an optional health service, to assure that emergency responders in Wisconsin are able to offer fully informed quality treatment in emergency health situations and families are rapidly notified of such situations. *Action: Adopted as Amended.*

RESOLVED, That the Wisconsin Medical Society ~~encourage health plans~~ supports the concept of a virtual medical ID bracelet identification alert system that can be used in emergencies, ~~in Wisconsin to offer enrollment in invisibleBracelet.org as an optional health service~~, to assure that emergency responders in Wisconsin are able to offer fully informed quality treatment in emergency health situations, and that families are rapidly notified of such situations.

Resolution 2 directed the Society to support legislation that requires every school district in the state to have a nurse-to-student ratio of 1:750 or greater. *Action: Adopted as Amended.*

RESOLVED, That the Wisconsin Medical Society ~~supports legislation that requires every school district in the state to have a nurse-to-student ratio of 1:750 or greater.~~ recognizes the importance of school nurses to provide a safe environment for our students and supports appropriate nurse-to-student ratios in all schools.

Resolution 3 directed the Society to support efforts by the Governor's office, the Governor's Public Health Council, the Wisconsin Legislature, and others to examine new ways in which Wisconsin's health departments can be better financially supported with a goal of at least achieving a rank near the 50th percentile for national public health per capita spending. *Action: Adopted as Amended.*

RESOLVED, That the Wisconsin Medical Society supports policy that provides additional resources for evidence-based prevention activities and programs provided by health departments in Wisconsin; and be it further

RESOLVED, That the Wisconsin Medical Society supports efforts by the Governor's office, the Governor's Public Health Council, the Wisconsin Legislature, and others to examine new ways in which Wisconsin's health departments can be better financially supported ~~with a goal of at least achieving a rank near the 50th percentile for national public health per capita spending.~~

Resolution 4 directed the Society to encourage the Department of Health Services to implement a swipe card system for Medical Assistance Program patients and encourage health insurance plans to make available a swipe card system, that includes all the patient's health insurance eligibility, reimbursement rate and expected patient co-insurance payment information. *Action: Referred to the Board of Directors.*

Resolution 5 directed the Society, in conjunction with the State Department of Health Services, to develop measures to be monitored quarterly to assure that ALL BadgerCare enrollees have a primary medical home at point of portal, that the medical home meets the principles adopted by the Society and that a primary medical home presented as part of an managed care organization network as open to new patients be frequently monitored with the goal of access. *Action: Referred to the Board of Directors.*

Resolution 6 directed the Society to reaffirm that rationing necessary resources from those that need those resources is unacceptable and unethical; and that some Wisconsin residents today are unable to access necessary care, a condition that offends our ethical prin-

ciples. The resolution further directed that the Society, in order to meet its three goals of health care reform (universal health insurance coverage, high quality health care and control of health care costs), ~~The resolution also~~ affirms that ethical distribution of medical resources is a necessary component of a just health care system, including a system of universal coverage, due to the existence of need that exceeds finite resources; that Wisconsin physicians strive to provide health care commensurate with degree and urgency of medical need rather than economic or other considerations. The Resolution also directed that the Society commit to review, through Councils on Ethics, Access and Public Health, extant efforts and recommend for Wisconsin viable initiatives that assure that all people receive the care they require, including beneficiaries of Medicaid, Medicare, commercial insurance, and the uninsured. *Action: Not Adopted.*

Resolution 7 directed the Society to direct its representatives to the American Medical Association to request the creation of a national repository of innovations and experiments in improving access to and distribution of physician services to government-insured patients (National Access Toolbox). *Action: Referred to the Board of Directors.*

Resolution 8 directed the Society to convene state primary care and specialty medical societies and directors of private and public health care organizations to discuss and implement solutions for improved access to physician care for state-insured patients. *Action: Not Adopted.*

Resolution 9 directed the Society to adopt a policy supporting public funding of comparative effectiveness research and implementation of its use in decisions regarding public funding of medical services. *Action: Adopted AMA Policy H-460.909 Comparative Effectiveness Research in lieu of Resolution 9.*

H-460.909 Comparative Effectiveness Research

The following Principles for Creating a Centralized Comparative Effectiveness Research Entity are the official policy of our AMA:

PRINCIPLES FOR CREATING A CENTRALIZED COMPARATIVE EFFECTIVENESS RESEARCH ENTITY:

A. Value. Value can be thought of as the best balance between benefits and costs, and better value as improved clinical outcomes, quality, and/or patient satisfaction per dollar spent. Improving value in the US health care system will require both clinical and cost information. Quality comparative clinical effectiveness research (CER) will improve health care value by enhancing physician clinical judgment and fostering the delivery of patient-centered care.

B. Independence. A federally sponsored CER entity should be an objective, independent authority that produces valid, scientifically rigorous research.

C. Stable Funding. The entity should have secure and sufficient funding in order to maintain the necessary infrastructure and resources to produce quality CER. Funding source(s) must safeguard the independence of a federally sponsored CER entity.

D. Rigorous Scientifically Sound Methodology. CER should be conducted using rigorous scientific methods to ensure that conclusions from such research are evidence-based and valid for the population studied. The primary responsibility for the conduct of CER and selection of CER methodologies must rest with physicians and researchers.

E. Transparent Process. The processes for setting research priorities, establishing accepted methodologies, selecting researchers or research organizations, and disseminating findings must be transparent and provide physicians and researchers a central and significant role.

F. Significant Patient and Physician Oversight Role. The oversight body of the CER entity must provide patients; physicians (MD, DO), including clinical practice physicians; and independent scientific researchers with substantial representation and a central decision-making role(s). Both physicians and patients are uniquely motivated to provide/receive quality care while maximizing value.

G. Conflicts of Interest Disclosed and Minimized. All conflicts of interest must be disclosed and safeguards developed to minimize actual, potential and perceived conflicts of interest to ensure that stakeholders with such conflicts of interest do not undermine the integrity and legitimacy of the research findings and conclusions.

H. Scope of Research. CER should include long-term and short-term assessments of diagnostic and treatment modalities for a given disease or condition in a defined population of patients. Diagnostic and treatment modalities should include drugs, biologics, imaging and laboratory tests, medical devices, health services, or combinations. It should not be limited to new treatments. In addition, the findings should be re-evaluated periodically, as needed, based on the development of new alternatives and the emergence of new safety or efficacy data. The priority areas of CER should be on high volume, high cost diagnosis, treatment, and health services for which there is significant variation in practice. Research priorities and methodology should factor in any systematic variations in disease prevalence or response across groups by race, ethnicity, gender, age, geography, and economic status.

I. Dissemination of Research. The CER entity must work with health care professionals and health care professional organizations to effectively disseminate the results in a timely manner by significantly expanding dissemination capacity and intensifying efforts to communicate to physicians utilizing a variety of strategies and methods. All research findings must be readily and easily accessible to physicians as well as the public without limits imposed by the federally supported CER entity. The highest priority should be placed on targeting health care professionals and their organizations to ensure rapid dissemination to those who develop diagnostic and treatment plans.

J. Coverage and Payment. The CER entity must not have a role in making or recommending coverage or payment decisions for payers.

K. Patient Variation and Physician Discretion. Physician discretion in the treatment of individual patients remains central to the practice of medicine. CER evidence cannot adequately address the wide array of patients with their unique clinical characteristics, comorbidities and certain genetic characteristics. In addition, patient autonomy and choice may play a significant role in both CER findings and diagnostic/treatment planning in the clinical setting. As a result, sufficient information should be made available on the limitations and exceptions of CER studies so that physicians who are making individualized treatment plans will be able to differentiate patients to whom the study findings apply from those for whom the study is not representative.

Resolution 10 directed the Society to support working with the OCI (Office of the Commissioner of Insurance) to establish a uniform definition of Medical Loss Ratio and methodology for determining how to calculate it based on the average medical loss ratio in a health insurance issuer's book of business. *Action: Adopted as Amended.*

~~RESOLVED, That the Wisconsin Medical Society shall support policies that require each health insurance issuer that offers health insurance coverage in small group, large group and individual markets to provide coverage which has a medical loss ratio mandated by the State of Wisconsin or Federal Government; and be it further~~

RESOLVED, That the Wisconsin Medical Society supports working with the OCI (Officer of Commissioner of Insurance) to establish a uniform definition of Medical Loss Ratio and methodology for determining how to calculate it based on the average medical loss ratio in a health insurance issuer's book of business.

Resolution 11 directed the Society to ask our AMA to seek repeal of the "Defense of Marriage Act" in order to allow US Military personnel in legal same sex marriages, civil unions or domestic partnerships the ability to acknowledge these relationships, and for their dependent children and same sex

spouses to receive equal death benefits, health insurance and other benefits offered to other married US military personnel. *Action: Original Language Substituted and Adopted.*

RESOLVED, That our Wisconsin Medical Society ask our AMA to seek repeal of the "Defense of Marriage Act" in order to allow US Military personnel in legal same sex marriages, civil unions or domestic partnerships the ability to acknowledge these relationships, and for their dependent children and same sex spouses to receive equal death benefits, health insurance and other benefits offered to other married US military personnel.

Resolution 12 directed the Society to support Wisconsin legislation, modeled after the Oregon "death with dignity" law, to allow terminal patients to determine the manner and timing of their death when they decide that they no longer want to live. *Action: Not Adopted.*

Resolution 13 directed the Society to promote legislation that will allow physicians to go to the free marketplace to purchase liability insurance, and that such legislation would provide for the following: 1) limiting the liability of the Injured Patients and Families Compensation Fund (Fund) to an actuarially sound level; 2) offering physicians participation in the Fund at several levels according to their needs (for example, $2 million, $4 million, or $6 million of excess liability coverage with different premium levels); 3) making the purchase of excess liability coverage via the Injured Patients and Families Compensation Fund voluntary and allow physicians the option of purchasing any needed excess liability coverage through private carriers. A*ction: Not Adopted.*

Resolution 14 directed the Society to work to repeal the hospital and nursing home taxes and to communicate to politicians that taxing the sick is poor public policy and that if federal matching funds are to be used to finance health care, then any tax should be broadbased and not targeted to hospitals, physicians, patients or other health care entities. *Action: Adopted Board Report A: 2009 Resolution 9: Hospital Tax in Lieu of 2010 Resolution 14: Hospital and Nursing Home Bed Tax.*

~~RESOLVED, That the Wisconsin Medical Society will work to repeal the hospital and nursing home bed taxes; be it further~~

RESOLVED, The Wisconsin Medical Society ~~will communicate to the politicians~~ believes that: ~~1)~~ taxing the sick is poor public policy, ~~;~~ and ~~2~~) there are other ways in which health care should be financed that are more equitable. ~~, and which do not depend on federal funds which may or may not be available in the future.~~

Resolution 15 directed the Society to reaffirm the importance of freedom in medicine. The Resolution further directed that the Society will assess the impact on medical freedom of any given proposal prior to taking a position on that proposal, be it legislation, or any other initiative, and that such assessments will be made available in writing. *Action: Not Adopted.*

Resolution 16 directed the Society to work with state agencies to form a multidisciplinary group that will be convened on a regular basis to consider the medical evidence supporting the use of specific health services, making a determination of effectiveness and value, for use in decision-making regarding funding of health services. *Action: Not Adopted.*

Resolution 17 directed the Society to direct its representatives to the American Medical Association to create a central repository of proprietary guidelines accessible to clinicians and patients. *Action: Not Adopted.*

Resolution 18 directed the Society to work with state agencies and the Commissioner of Insurance to create an accessible database allowing look-up of a price range and reimbursement range for specific CPT codes for services in different geographic regions (eg ZIP codes). *Action: Not Adopted.*

Resolution 19 directed the Society to play an active part in the governing comparative

effectiveness research entity to ensure that the effect does not disrupt the trust between a physician and her or his patient. It further directed the Society to support using comparative effectiveness research as a tool for determining what is the best evidentiary value-based approach based on quality over cost. It also directed the Society to support policy-makers using comparative effectiveness research as long as the benefits from such use are not diverted to non-health care funds, and that decisions on coverage are not based solely on cost. *Action: Adopted.*

Resolution 20 directed the Society to propose that total death rates during hospital stays and within 10 days after an outpatient visit be monitored. The resolution further directed that all associated or concerned with improving outcomes of medical-surgical care suggest the most practical and acceptable ways to reduce these deaths. It also directed the Society to focus on those with the lowest rates to identify factors most likely to be associated with the lowest rates so others can emulate them. Also, the resolution directed that the cost of actually monitoring these deaths be found at one or a handful of volunteer medical-surgical sites for a short period only long enough for a good estimate of total cost statewide. *Action: Not Adopted*

Resolution 21 directed the Society to work toward supporting the expansion of Regional Health Information Organizations (RHIO) to include a broader collection of health information and to allow primary care physicians access to their patients' collective RHIO records. It further directed the Society to support the Wisconsin Relay of Electronic Data (WIRED) for health initiative with the goal of creating a system capable of supporting a statewide health information exchange. *Action: Adopted as Amended.*

RESOLVED, That the Wisconsin Medical Society works toward supporting the expansion of Regional Health Information Organizations (RHIO) to include a broader collection of health information and to allow ~~primary care~~ physicians access to their patients' collective RHIO record; and be it further

RESOLVED, That the Wisconsin Medical Society support the State Designated Entity (SDE) ~~Wisconsin Relay of Electronic Data (WIRED) for health initiative~~ with the goal of creating a system capable of supporting a statewide health information exchange.

Resolution 22 directed the Society to respectfully encourage our state's medical schools and residency/fellowship programs to incorporate quality improvement curricula, including principles of quality improvement unique to Wisconsin into their training *Action: Adopted as Amended.*

RESOLVED, That the Society respectfully encourage our state's medical schools and residency/fellowship programs to incorporate quality and performance improvement curricula, including principles of quality and performance improvement unique to Wisconsin, into their training. *Action: Adopted as Amended.*

Resolution 23 directed the Society to support routine vaccination of all age appropriate males and females against human papillomavirus (HPV). It further directed the Society to use its communication tools to members to convey to the physicians of Wisconsin the importance of the HPV vaccine for both males and females. It also directed the Society's AMA delegation to bring forth this resolution to the next annual meeting. *Action: Referred to the Board of Directors.*

Resolution 24 directed the Society to support CT colonography (CTC) for patients who would benefit from screening but either decline colonoscopy or are not good candidates for colonoscopy. It also directed the Society to communicate this recommendation to its members via an article in the *Wisconsin Medical Journal* that summarizes the data on CTC and reviews the ACS Joint Guidelines on Screening and Surveillance for the Early Detection of Colorectal Cancer and Adenomatous Polyps. *Action: Not Adopted.*

Resolution 25 directed the Society to support policies that improve public health by preventing climate change, improving air quality and designing communities to foster healthy lifestyles. It further directed the Society to support policies that require decreased greenhouse gas emissions and air pollution through policies including but not limited to: increased use of renewable energy sources, increased energy efficiency and fuel emission limitations; transportation and community design codes that ensure communities incorporate multi-modal transportation systems including sidewalks, dedicated bike paths and mass transit. It also directed the Society to support requiring the Public Service Commission to include health impact assessments of monetized external health costs from the Division of Public Health when issuing permits for new energy sources, or renewing permits for current energy sources. *Action: Adopted as Amended.*

RESOLVED, That the Wisconsin Medical Society supports policy that improves public health by ~~preventing climate change,~~ improving air quality, and providing options for active transportation ~~designing communities to foster healthy lifestyles~~; and be it further

RESOLVED, That the Wisconsin Medical Society supports policies that require decreased greenhouse gas emissions and air pollution through policies including, but not limited to, the following:

- Increased use of renewable non-emitting energy sources, increased energy efficiency, and fuel emission limitations,
- Transportation and community design codes that ~~ensure~~ encourage communities to incorporate multi-modal transportation systems including sidewalks, dedicated bike paths, and mass transit where geographically appropriate; and be it further

RESOLVED, That the Wisconsin Medical Society supports requiring the Public Service Commission to include health impact assessments of monetized external health costs from the Division of Public Health when issuing permits for new energy sources, or renewing permits for current energy sources.

Resolution 26 directed the Society to oppose the construction of new coal-fired power plants. It further directed that the Society support the Public Service Commission creating a phase-out schedule of existing coal-fire power plants and retiring them according to their age. It also directed the Society to support the Public Service Commission when reviewing permits for current coal plants, replacing such plants with alternative sources that emit no air pollution rather than installing scrubbers, which ensure extended emission of pollutants. The resolution further directed the Society to support labeling coal ash as hazardous by any and all relevant regulatory bodies and supports the creation of a publicly available, up-to-date inventory of all coal ash sites in Wisconsin. *Action: Resolves 1 2, and 3 Referred to the Board of Directors. Action: Adopted Fourth Resolved.*

RESOLVED, That the Wisconsin Medical Society supports labeling coal ash as hazardous by any and all relevant regulatory bodies, and supports the creation of a publicly available, up-to-date inventory of all coal ash sites in Wisconsin.

Resolution 27 directed the Society to encourage and act to legislate to create, implement and resource studies through the Wisconsin Department of Natural Resources and the US Environmental Protection Agency (EPA) to determine the short-term and long-term impact of the aforementioned products. It also directed the Society to develop an educational campaign for physicians and their patients on the possible harmful effects of atrazine, Polybrominated diphenyl ethers (PBDE), phthalates (commonly used cosmetics), manufacture by-products of perflorinated chemicals, the prevalence of estrogens in consumer water supplies and the use of antibiotics in consumable meat products. *Action: Adopted.*

Resolution 28 directed the Society to prioritize supporting programs and policies that

ensure school students have access to fresh, local produce. *Action: Adopted as Amended.*

RESOLVED, That the Wisconsin Medical Society prioritizes supporting programs and policies that ensure school students have access to fresh, local produce.

Resolution 29 directed the Society to unequivocally condemn the involvement of medical personnel in monitoring and/or participating in torture of any one, at any time, under any circumstances. *Action: Adopted.*

Resolution 30 directed the Society to oppose any legislation to allow sale of any dairy products made of raw milk in Wisconsin. *Action: Adopted as amended in lieu of Board Report B: Sale of Raw Milk & Milk Products.*

RESOLVED, That the Wisconsin Medical Society oppose any legislation to allow sale of any dairy products made of ~~raw~~ unpasteurized milk to the public in Wisconsin.

Resolution 31 directed the Society amend its Bylaws in Chapter II, Section 11. Additions to the Agenda, by deleting the words "or any member thereof" from between the words "by the Board" and "by the Speaker." *Action: Adopted.*

Resolution 32 directed that the Society policy regarding accepting late resolutions for consideration by the House of Delegates be amended to require a supermajority of the House of Delegates attendees rather than the current requirement of unanimity of the House of Delegates attendees. *Action: Adopted as Amended.*

RESOLVED, That the Wisconsin Medical Society policy regarding accepting late resolutions for consideration by the House of Delegates be amended to require a ~~super-majority~~ two-thirds vote of the House of Delegates attendees rather than the current requirement of unanimity of the House of Delegates attendees.

Resolution 33 directed that whenever someone designated to speak for the Society has to use the AMA policy for direction because the Wisconsin Medical Society does not have a policy on an issue, the AMA policy will be scheduled for review by the appropriate Society council or other Society entity. *Action: Adopted.*

Resolution 34 directed the Society to reimburse the Speaker and Vice Speaker of the Wisconsin Medical Society House of Delegates for hotel, food and mileage expenses for the Wisconsin Medical Society's Annual Meeting. *Action: Adopted.*

Resolution 35 directed the Society to appoint an ad hoc committee to review the current Nominating Committee composition and the nominating process and report back to the Society Board of Directors with recommendations by the January 2011 Board of Director's meeting to allow for recommended changes to be presented to the House of Delegates in 2011. It further directed the Society to encourage the Board of Directors to have a diversity of members from all Districts and sections in the Society on the ad hoc committee. *Action: Referred to the Board of Directors.*

Resolution 36 – *Withdrawn by Author.*

Late Resolution 37 directed the Wisconsin Medical Society to discuss, through the Membership Committee, the possibility of forming a physician union for the purpose of representing employed physicians in practice and present a report to the Board of Directors. *Action: Adopted as amended. Adopted Resolution title change to: Professionalism in Practice.*

RESOLVED, That the Wisconsin Medical Society, through its Membership Committee, ~~discuss the possibility of forming a physician union for the purpose of representing employed physicians in practice~~ identifying ways to enable physicians to better serve their patients as employees of health care facilities and present a report to the Board of Directors.

Board Report A: 2009 Resolution 9: Hospital Tax. *Action: Adopted in lieu of 2010 Resolution 14.*

~~RESOLVED, That the Society will work to repeal the hospital and nursing home bed taxes; be it further~~

RESOLVED, The Wisconsin Medical Society ~~will communicate to the politicians~~ believes that: ~~1)~~ taxing the sick is poor public policy, ; and ~~2~~) there are other ways in which health care should be financed that are more equitable. ~~, and which do not depend on federal funds which may or may not be available in the future.~~

Board Report A: 2009 Resolution 14: End of Life Choices by Patients. *Action: Adopted.*

~~H-140.966 Decisions Near the End of Life~~

The Wisconsin Medical Society ~~Our AMA~~ believes that:
(1) The principle of patient autonomy requires that physicians must respect the decision to forgo life-sustaining treatment of a patient who possesses decision-making capacity. Life sustaining treatment is any medical treatment that serves to prolong life without reversing the underlying medical condition. Life-sustaining treatment includes, but is not limited to, mechanical ventilation, renal dialysis, chemotherapy, antibiotics, and artificial nutrition and hydration.
(2) There is no ethical distinction between withdrawing and withholding life-sustaining treatment.
(3) Physicians have an obligation to relieve pain and suffering and to promote the dignity and autonomy of dying patients in their care. This includes providing effective palliative treatment even though it may foreseeably hasten death. More research must be pursued, examining the degree to which palliative care reduces the requests for euthanasia or assisted suicide.
(4) Physicians must not perform euthanasia or participate in assisted suicide. A more careful examination of the issue is necessary. Support, comfort, respect for patient autonomy, good communication, and adequate pain control may decrease dramatically the public demand for euthanasia and assisted suicide. In certain carefully defined circumstances, it would be humane to recognize that death is certain and suffering is great. However, the societal risks of involving physicians in medical interventions to cause patients' deaths is too great to condone euthanasia or physician-assisted suicide at this time.
(5) The Wisconsin Medical Society ~~Our AMA~~ supports continued research into and education concerning pain management. ~~(CEJA Rep. B, A-91; Reaffirmed by BOT Rep. 59, A-96; Reaffirmation A-97; Appended: Sub. Res. 514, I-00)~~

Board Report A: Direct-to-Consumer Advertising of Pharmaceutical Products. *Action: Adopted.*

RESOLVED, that the Wisconsin Medical Society oppose direct-to-consumer advertising of prescription pharmaceuticals, and be it further

RESOLVED, that the Wisconsin Medical Society support unbiased, independent and publicly funded education to consumers regarding disease states and available treatments.

Board Report A: 2009 Resolution 4: Apology for Organizational Racism. *Action: Adopted.*

Board Report AA: 2009 Resolution 13: Authorization for Field Use of Naloxone to Reduce Overdose. *Action: Adopted.*

The Wisconsin Medical Society supports development of ~~collaborate with the Medical Examining Board and the Division of Public Health to develop~~ enabling regulation and legislation, as necessary, to allow for evidence-based harm reduction strategies, along with physician and public education regarding these approaches, so that injectable naloxone or naloxone nasal spray may be readily available to persons who may be at risk of opioid overdose death, either in the context of authorized medical treatment of chronic pain, or unauthorized use of heroin or prescription opioid analgesics by persons with substance use disorders.

Board Report B: 2009 Resolution 19: Restriction of Cell Phone Usage and Text Messaging While Driving. *Action: Adopted.*

Board Report B: 2009 Resolution 15: Data Access – Federal Level. *Action: Adopted.*

Board Report B: 2009 Report – Economic Credentialing. *Action: Adopted.*

Board Report BB: 2009 Resolution 16 – Data Access - State Level. *Action: Adopted.*

Board Report C: 2010 Budget. *Action: Adopted.*

Board Report C: Constitution and Bylaws Revisions. *Action: Chapter I, Section 4 – Adopted as amended.*

Ch. I, Section 4 County Society Membership Requirements
A physician may hold his or her county society membership in any county in which he or she has a significant portion of his or her practice. A member in good standing may decide to transfer his or her county society membership to another county in which he or she has a significant portion of his or her practice. A request to transfer county society membership shall be made in writing and sent to the office of the Executive Vice President of the Society. The Society shall verify whether the member holds a valid medical license and inform both county societies of the transfer request. Dues and assessments, if already paid by the member, will stay with the original county society. If dues and assessments have not yet been paid, they shall be paid to the county society where the member desires to transfer his or her membership. The Society's county society membership requirement shall be waived for all members who do ~~not~~ have a significant portion of their practice in a county not served by an active county medical society.

Action: Chapter I, Section 6 – Adopted as amended.

Ch. I, Section 6. Appeal Process for Membership Expulsions and Suspensions
Any physician who feels aggrieved by his or her county society's decision to suspend or expel him or her shall have the right to appeal the suspension or expulsion to the Board of the Wisconsin Medical ~~State~~ Society, whose decision shall be final. A county society shall at all times be permitted to appeal or refer questions involving membership to the Board of the Wisconsin Medical ~~State~~ Society for final determination. The Board shall adopt procedures to implement this section.

Action: Chapter II, Section 10 – Adopted as amended.

Ch. II, Section 10
C. AMA Delegates. The House shall elect Delegates to the House of Delegates of the American Medical Association (AMA) in accordance with the AMA Constitution and Bylaws. No person who has served 12 or more consecutive years as a Wisconsin delegate to the AMA shall be eligible to serve another term unless the delegate ~~will~~ is serving concurrently ~~serve~~ on any of the following AMA Councils: Constitution and Bylaws, Medical Education, Medical Service, Ethical and Judicial Affairs, Long Range Planning and Development, Legislation, Science and Public Health, or the American Medical Political Action Committee Board of Directors.

Action: Chapter IV, Section 5 H - Adopted.

Ch. IV, Section 5 H
The Board shall evaluate applications from and issue charters to county societies. The Board may suspend or revoke the charter of any county society whose actions are in conflict with the letter or spirit of the Society's Constitution and Bylaws or have violated the charter agreement entered into with the Society. In sparsely populated counties, the Board shall have the authority to organize the physicians of two (2) or more counties into a single county medical society; such multi-county societies, when organized and chartered, shall be entitled to all of the rights and privileges provided for other county medical societies.

Action: Chapter V, Section 1 Charters - Adopted.

Ch. V, Section 1 Charters
The Board shall issue charters to all county medical societies ("county societies") who have signed a charter agreement and sub-

mitted their constitutions and bylaws to the Board, provided that their constitutions and bylaws are not inconsistent with the Constitution and Bylaws of this Society. All county societies shall sign a charter agreement annually. Failure to sign the charter agreement may result in the suspension or revocation of a county society's charter. All county societies shall submit revisions of their constitutions and bylaws to the Society for approval by the Board and filing with the Executive Vice President. Where a county society's constitution and bylaws are unavailable, the model constitution and bylaws for county medical societies, as last approved by the Board, shall apply.

Action: Chapter V, Section 2 County Societies - Adopted.

Ch. V, Section 2 County Societies
Only one (1) county medical society shall be chartered in each county. In sparsely populated counties, the Board may organize the physicians of two (2) or more counties into a single county medical society as provided in Chapter IV, Section 5 of these Bylaws. Such multi-county societies, when organized and chartered, shall be entitled to all of the rights and privileges provided for other county societies. To remain active, a county society shall meet at least once each calendar year.

Action: Chapter V, Section 4 Secretary – Adopted as Amended.

Ch. V, Section 4 Secretary
The secretary of each county society shall obtain a roster of its members from the Wisconsin Medical Society. The Secretary shall record and retain minutes of all meetings of the county society and its members.

Action: Chapter V, Section 5 Inactive Status - Adopted.

Ch. V, Section 5 Inactive Status
The Society's Board may consider no more than once per calendar year a written request by at least 10 percent of the Regular and Special members of a county society to hold a mail or electronic ballot to retire the county society to inactive status. The Board shall make a determination based upon established Board policy whether such a ballot shall be conducted. If the Board approves the request, the Society shall send a mail or electronic ballot to all Regular and Special members of that county society. At least 25 percent of these ballots must be returned to the Society's Executive Vice President, and a simple majority of the returned ballots is necessary before the Board will review the results and take appropriate action to change the status of the county society.

A county society will be declared inactive if it does not hold at least one business/planning meeting each calendar year. The Society's Board will notify the county society in writing of a decision to place the county society on inactive status. Such notice shall be sent to the current President of the county society on record, with copies being sent to all known officers, delegates and alternate delegates of the county society. A county society will also be considered inactive if its charter has been suspended. If a county society becomes inactive, the Society shall no longer collect dues on its behalf. Once a county society is inactive for three years, its charter shall be revoked, the organization shall be formally disbanded and the entity shall dissolve and settle all financial commitments, including distribution of its assets, within sixty (60) days.

Action: Chapter V, Section 7 Suspension or Revocation of Charter - Adopted.

Ch. V, Section 7 Suspension or Revocation of Charter
The Board may suspend or revoke the charter of any county society whose actions are in conflict with the letter or spirit of the Society's Constitution and Bylaws, or has violated the charter agreement entered into with the Society. If a county society's charter has been suspended, it will be considered inactive. A county society may reverse a suspension of its charter within one year by resolving the issues that led to the initial suspension of its charter. If the suspension is not remedied within the required time, and

the county society has not received an extension from the Society's Board to accomplish such, the suspension shall be converted to a revocation. Written notice of such action shall be mailed to the county society's current President on record. Such notice shall be sent to the current President of the county society on record, with copies being sent to all known officers, delegates and alternate delegates of the county society.

Once a county society's charter is revoked, the county society shall be formally disbanded and the county society shall dissolve and settle all financial commitments, including distribution of its assets, within sixty (60) days.

Action: Chapter V, Section 8 Regaining Active Status – Adopted as Amended.

Ch. V, Section 8 Regaining Active Status
A county society deemed inactive by reason of not meeting annually, may regain active status within three years of being deemed inactive by submitting to the Society's Board, for its review and approval, a request, ~~signed by at least 10% of the Society's members who would be eligible for membership in the county society. The request~~ which must include: (1) a proposed constitution and bylaws for the county society requesting re-activation, (2) a proposed meeting date for the re-activated county society, and (3) a list of at least five (5) members willing to take on a leadership role with the re-activated county society. The Board shall review the request at its next regular meeting. The Board shall notify the county society, in writing, of its decision. Such notice shall be sent to the current President of the county society on record, with copies being sent to all known officers, delegates and alternate delegates of the county society.

A county society deemed inactive by reason of suspension or revocation of its charter may only regain active status by resolving all issues that led to the suspension or revocation to the satisfaction of the Board. The county society shall submit a written request to the Board requesting the suspension or revocation be terminated and the county society regain active status. The request shall outline the actions taken by the county society to resolve the issues that led to the suspension or revocation. The Board shall review the request at its next regular meeting. The Board shall notify the county society, in writing, of its decision. Such notice shall be sent to the current President of the county society on record, with copies being sent to all known officers, delegates and alternate delegates of the county society.

If members of the Wisconsin Medical ~~State~~ Society wish to organize in a county in which a previously organized county society has had its charter revoked, it shall apply to the Board of the Wisconsin Medical ~~State~~ Society to be recognized and chartered as a county society. The application must include: (1) a proposed constitution and bylaws for the newly organized county society, (2) a proposed meeting date for the newly organized county society, and (3) a list of at least five (5) members willing to take on a leadership role with the newly organized county society. The Board shall review the application at its next regular meeting and, if appropriate, enter into a charter agreement with the newly organized county society.

Action: Chapter V, Section 9 Appeal Process for Charter Granting, Suspension or Revocation - Adopted.

Ch. V, Section 9 Appeal Process for Charter Granting, Suspension or Revocation
Any county society that feels aggrieved by the Board's decision regarding the granting, suspension, or revocation of its charter shall have the right to appeal the Board's decision to the House. The appeal shall be made in writing, and mailed to the attention of the Society's Executive Vice President/Chief Executive Officer, within thirty (30) days of the Board's issuing of its decision. The House shall grant or deny the appeal on its merits. The decision of the House shall be final.

Action: Chapter XII Dissolution - Adopted.

Ch. XII Dissolution
The Society shall use its funds only to accom-

plish the objectives and purposes specified in these Bylaws and no part of said funds shall inure, or be distributed, to the members of the Society. Upon dissolution of the Society, any funds remaining shall be distributed to one or more regularly organized and qualified charitable, educational, scientific, or philanthropic organizations to be elected by the Board of Directors. Any organization to which the remaining funds and property of the Society are to be conveyed must be exempt under the provisions of Section 501(c)(3) of the Internal Revenue Code of 1954, as amended, or under any successors to the Sections of the Code, as they may be in effect at the time of conveyance.

Action: Remainder of Report C:
Constitution and Bylaws - *Filed.*

Policy ABO-002: Partial Birth Abortion
Action: Not Adopted (Deleted).

Policy ACC-009: Bicycle Helmet Use
Action: Adopted as Amended (Retained as amended).

Because ~~As~~ bicycle accidents are a major cause of traumatic brain injuries and death in children and others in Wisconsin, the Wisconsin Medical Society (Society) supports legislation that would require helmet usage for all riders of bicycles, including passengers. Until such requirements become law, the Society strongly endorses the use of bicycle helmets by riders of all ages, especially children under the age of 18. The Society supports legislation that would specifically prohibit ~~prevent~~ the use of bicycles by children under the age of 18 unless ~~minor-aged~~ riders and passengers ~~who~~ are ~~not~~ wearing bicycle helmets. Further, the Society encourages all Wisconsin physicians to educate their patients and the general public about the importance of bicycle helmet use.

~~*H-10.985 Bicycle Helmets and Safety*~~
~~It is the policy of the AMA (1) to actively supports bicycle helmet use and encourages physicians to educate their patients about the importance of bicycle helmet use; (2) to encourages the manufacture, distribution, and utilization of safe, effective, and reasonably priced bicycle helmets; and (3) to encourages the availability of helmets at the point of bicycle purchase.; and (4) to develop model state/local legislation requiring the use of bicycle safety helmets, and calling for all who rent bicycles to offer the rental of bicycle safety helmets for all riders and passengers. (Res. 7, I-90; Modified by Sub. Res. 208, A-94; Reaffirmed: CSA Rep. 6, A-04)~~

~~*H-10.987 Use of Helmets in Bicycle Safety*~~
The Society also: ~~Our AMA~~ (1) supports appropriate efforts to educate parents and children about bicycle safety, including the use of bicycle helmets, and (2) supports working with the Wisconsin Chapter of the American Academy of Pediatrics and other appropriate organizations to ensure widespread distribution of information and educational materials about bicycle safety, including the use of bicycle helmets, to both medical and non-medical audiences. ~~(Sub. Res. 72, I-89; Reaffirmed: Sunset Report, A-00)~~

~~*H-10.977 Helmets and Preventing Motorcycle- and Bicycle-Related Injuries*~~
The Society also: ~~It is the policy of the AMA to:~~ (1) encourages physicians to counsel their patients who ride motorized and non-motorized cycles to use approved helmets and appropriate protective clothing while cycling; (2) encourages patients and families to inform and train children about safe cycle-riding procedures, especially on roads and at intersections, the need to obey traffic laws, and the need for responsible behavior; (3) encourages community agencies, such as those involving law enforcement, schools, and parent-teacher organizations, to promote training programs for the responsible use of cycles; (4) urges manufacturers to improve the safety and reliability of the vehicles they produce and to support measures to improve cycling safety; ~~(5) prepare model state legislation for cyclists' mandatory use of helmets while cycling;~~ and (~~5~~6) advocates for further research on the effectiveness of helmets and on the health outcomes of community programs that mandate their use. ~~(CSA Rep. 3, I-93; Reaffirmed: CSA Rep. 6, I-98;~~

~~Reaffirmed: CSAPH Rep. 2, A-08)~~

~~*H-15.960 Motor Vehicle and Bicycle Safety*~~
~~The Society also AMA supports legislation that would make safety belt non-use by any occupants in automobiles and other enclosed motor vehicles a "primary offense" in all states; and supports extension of motorcycle helmet laws to include motorized vehicles such as mopeds, scooters and all-terrain vehicles, and to cover all age groups; and supports legislation that would require helmet usage for riders of bicycles, including passengers. (Res. 226, A-95; Reaffirmed: BOT Rep. 12, A-05)~~ The Society supports motorcycle helmet laws for all operators and passengers when operating any motorized vehicle including mopeds, scooters and all-terrain vehicles.

Policy ALC-006: Alcohol Warning Signs
Action: Adopted (Retained)

Referral of potential amendments of ALC-006 – Referred to the Board of Directors

The Wisconsin Medical Society supports requiring retailers to prominently display a sign on the retailer's premises warning pregnant women that they should not drink alcohol beverages, smoke tobacco or other drugs, or engage in the non-medical use of drugs ~~because of the risk of birth defects~~ given adverse effects on fetal development of smoking, alcohol use, and non-medical use of drugs; and warning men of the potential adverse effects on male fertility and on offspring of smoking, alcohol use, and non-medical use of drugs.

Policy ETH-013: Physician-Assisted Suicide
Action: Not Adopted (Deleted).

Policy ETH-020: Euthanasia
Action: Not Adopted (Deleted).

Policy ETH-022: Child Support Initiative Relating to Denial of Licenses and Credentials by the Department of Regulation and Licensing
Action: Adopted (Retained).

Policy MCH-026: Alcohol Warning Signs
Action: Adopted (Retained).

Referral of potential amendments of MCH-026 – Referred to the Board of Directors.

The Wisconsin Medical Society recognizes the severe impact that perinatal use of alcohol, tobacco and illegal drugs have upon the health of ~~both~~ mothers, fathers and infants. The Society believes that physicians should routinely provide, at a minimum, a historical screening regarding alcohol, tobacco and non-medical drug use for all pregnant women, and those of childbearing age, as well as for the spouses or domestic partners of pregnant women, ~~for substance abuse~~ and to follow up positive screens with appropriate counseling, interventions, and referrals.

The Society further supports the following policy elements:

- That oppose legislation that criminalizes parental ~~maternal~~ drug addiction or requires physicians to function as agents of law enforcement—gathering evidence for prosecution rather than providing treatment.
- That forewarn the US government and the public at large that there are extremely serious implications of drug addiction during pregnancy and there is a pressing need for adequate ~~maternal~~ alcohol and other drug treatment, especially for pregnant women and their domestic partners, as well as ~~and~~ family-supportive child protective services.
- That encourage the government to expand the proportion of funds allocated to drug treatment, prevention and education within the context of its "War on Drugs." In particular, support is crucial for establishing and making broadly available specialized treatment programs for drug-addicted pregnant women and the drug-addicted domestic partners of pregnant women, wherever possible. (BOD, 0709)

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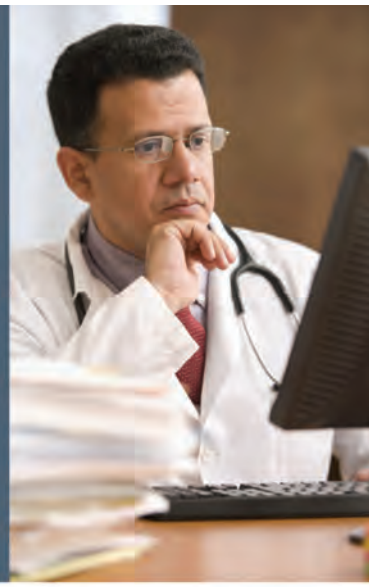

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