

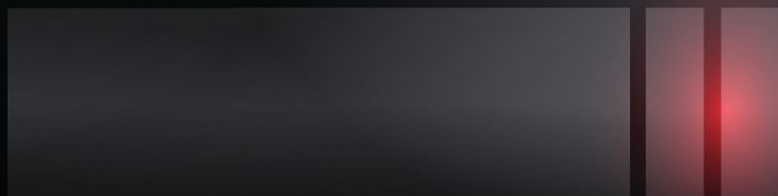
MINNESOTA **MEDICINE**

FEBRUARY 2014

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The high cost of **BATH SALTS**

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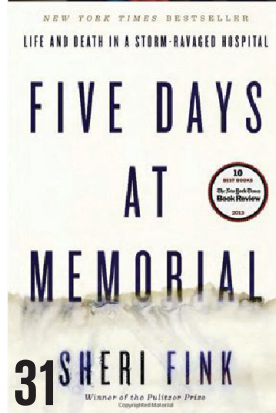
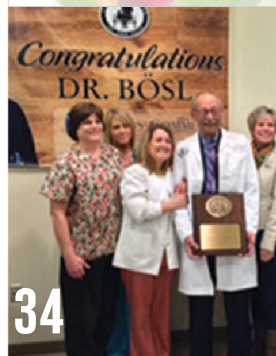
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# MINNESOTA MEDICINE

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PHOTO BY SCOTT WALKER

Charles R. Meyer, M.D., Editor in Chief

Docs who daily see patients are the microscopists of medicine; public health specialists are the telescopists.

## Big-picture thinkers

I click “done” in my inbox for the last time, knowing that as sure as the sun rises, more tasks will appear within minutes. I glance down the hall and see my nurse rooming my first patient, now 15 minutes late. As I enter the room, my hopes that this first appointment of the day would be a “quickie” are dashed as I notice the yellow legal pad filled with numbered, scrawled questions. Trying to refrain from the toe-tapping or forced speech that will reveal my true state of mind, I plod through the list with the patient, explaining her diabetes medications and reinforcing the need for her to check her blood sugars. When I exit the room 30 minutes behind schedule, I see the message from the triage nurse that one of my 93-year-olds is short of breath and wants to be worked in. I let her know what time he should come and turn to my next patient, an 83-year-old with failing memory who is living alone despite the entreaties of the family members who accompany him to the appointment. For sure the solutions to this man’s problems will not be “gimmes.” And the schedule for the rest of the day promises more of the same.

Some days in practice it’s hard to see past the next patient or to ascend the ever-present pile of what used to be paper, now compressed into a devilish device called the inbox. Through the deluge of detail, it’s hard to see the big picture, to think about the plight of the expanding elderly population in our society when you’re seeing that 83-year-old who wants to keep his house or the statistical rise of obesity and diabe-

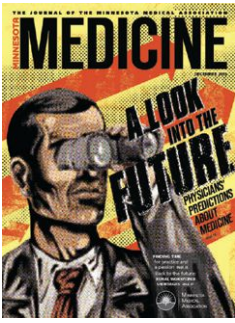
tes when you’re talking to a 54-year-old who can’t keep her medications straight and doesn’t want to check her blood sugars. We practitioners really need someone to be thinking about the big picture for us. And that’s why we have public health.

Docs who daily see patients are the microscopists of medicine, examining each patient in minute detail; public health specialists are the telescopists, astronomers who survey the heavens for trends, new diseases and generalizations that will eventually lead to practical guidance for us practitioners. To clinicians who put out individual patients’ fires every day, the decade-long studies and reams of statistics of public health gurus can seem about as exciting as watching grass grow. Yet such studies (like the 1950s Framingham Heart Study, which now shapes our vascular medical practice) are vital to us. We need big thinkers devising big projects to get the big picture.

Some talented docs have been able to take up the telescopes. They’ve joined the ranks of the big thinkers, stepping out of the office to battle heart disease and whooping cough one community, rather than one patient, at a time.

Practicing physicians look at the single organism walking through the door with her legal pad full of questions, and they analyze and recommend. Public health experts inspect the organism called society and do the same thing. It’s all medicine, and it all makes people healthier. ■■■

Charles Meyer can be reached at [meyer073@umn.edu](mailto:meyer073@umn.edu).



### Another prediction

I enjoyed the provocative predictions by Minnesota physicians regarding the future of medicine in your excellent

December 2013 feature “A Look into the Future” (p. 16).

May I respectfully add one more prediction? We finally will confront the elephant in the exam room—that the American health care “system” is actually a complicated and inefficient patchwork that squanders 31 percent of our health dollars on administration. We will recognize that the highly profitable and duplicative private insurance industry has proven a perennial failure, both in containing costs and in achieving anything resembling universal coverage.

We will adopt the streamlined efficiencies of a single-payer system to finally bring costs under control, achieve fair and

comprehensive risk pooling, and most importantly, guarantee quality coverage for all citizens.

Dave Dvorak, M.D.  
Minneapolis

### D.O. training update

I was just reading your article on the growth in the number of D.O.s. It mentions that the University of Minnesota Department of Family Medicine and Community Health has two dually accredited residency programs, which is no longer true. We now have one dually accredited program, the University of Minnesota Mankato Family Medicine Residency. However, all of our residency programs provide integrated training opportunities for D.O.s and M.D.s. Learn more at <http://z.umn.edu/familymedwelcomesdos>.

Emie Buege  
University of Minnesota Department of Family Medicine and Community Health

### A study on physicians with chronic diseases

Physicians who live with chronic disease have personal knowledge of the obstacles associated with meeting care requirements. They also have the opportunity to apply this understanding as they treat patients who have chronic disease. At the University of Minnesota, we are conducting a study to look at how having a chronic disease affects a physician’s approach to practicing medicine. Our hypothesis is that physicians living with a chronic illness will have values and experiences that inform and change how they work with patients who have chronic diseases.

We are seeking to interview physicians who have a chronic illness. If you would like to participate in this effort, please contact John Song, M.D., or Amy Kosel at [kose0018@umn.edu](mailto:kose0018@umn.edu) or 612-961-4904.



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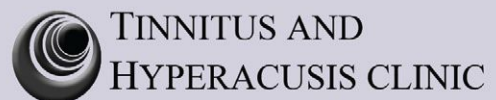
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One way to protect the health of collision repair workers is to make sure they wear properly fitted respirators when they are using potentially harmful chemicals.

## Crash course

Researchers look at worker safety in the auto body repair industry.

BY JEANNE METTNER

Since 2009, David Parker, M.D., M.P.H., a Park Nicollet and HealthPartners occupational medicine physician, and his research colleagues have been looking for ways auto body shop owners can ramp up their safety practices.

As part of the Collision Auto Repair Safety Study (CARSS), a collaboration between the Park Nicollet Institute and the University of Minnesota funded by the National Institute for Occupational Safety and Health, the researchers visited 49 collision repair shops in the Twin Cities and St. Cloud.

Parker says they decided to focus on auto collision repair because it's "a high-hazard industry." The nearly 34,000 collision-repair shops across the United States employ more than 200,000 people, according to 2010 data from the U.S. Bureau of Labor Statistics. Ninety percent of those shops employ fewer than 20 people. Among the things that put workers at risk are asthma-inducing chemicals, flammable solvents, noise, lifts improperly supporting cars and dangerous machinery. Some of the health problems documented among collision-repair workers are occupational asthma; head, eye and knee injuries; and injuries and illnesses caused by chemical exposures.

Parker and his colleagues assessed working conditions using a 92-item survey. Some of the common problems they saw were blocked emergency exits, inaccessible fire extinguishers, lack of ground-fault circuit interrupters in wet areas where electrical equipment was used, a lack of written safety policies and inadequate safety training. They also identified the safety concerns most likely to attract the attention of the Occupational Safety and Health Administration (OSHA).

The researchers reviewed their results with the shop owners and helped them select deficiencies to correct. Over the next 12 months, they met quarterly with the owners to fix problems and offered training, templates for safety protocols (for example, for de-activating machinery before conducting repairs), and services such as

medical clearance for respirator users and respirator fit testing.

One year after the initial survey, the investigators returned to the repair shops to do a follow-up evaluation. They found the percentage of safe practices in the shops increased from 54 percent to 71 percent. Improvements included better management of electrical hazards (closed electrical panels, use of ground-fault circuit interrupters), maintenance of emergency exits, and proper procedures for handling flammable liquids.

"One of the things we tested as part of the study was whether commitment to fixing safety issues mattered: If a shop owner said they were going to fix a particular safety problem, did that commitment make them more likely to succeed? The answer was 'yes,'" says Anca Bejan, a research industrial hygienist at Park Nicollet Institute's Health Research Division. However, when team members cold-called participating shop owners 24 months after the initial intervention, they found that although they had maintained their pledged improvements, they had made few additional ones. (The team did not evaluate the health effects of or the medical cost-savings associated with the changes.)

In the future, Parker and his colleagues hope to partner with Minnesota's OSHA Workplace Consultation Program, the Minnesota Alliance of Automotive Service Providers and technical colleges to raise awareness of the safety and health issues in collision repair shops and promote safe workplace practices.

# Gut instinct

Greg Plotnikoff saw writing a book as a way to do public health.

BY CARMEN PEOTA

For the last decade, Greg Plotnikoff, M.D., M.T.S., has been working as a detective. As an integrative medicine specialist at Allina Health's Penny George Institute for Health and Healing in Minneapolis, he has focused on solving the cases of "mystery patients," people who've had extensive work-ups but don't have a diagnosis or a treatment plan that's alleviating their symptoms.

Among them were people diagnosed with and treated for such maladies as inflammatory bowel disease or GERD but who still suffered symptoms ranging from diarrhea to depression. Plotnikoff began to realize that these cases were anything but unique. "Every physician sees these patients," he says. "Gut problems are so common, and so many people suffer, including doctors who throw up their hands or, in a compassionate manner, surrender and say, 'You have to live with this.'"

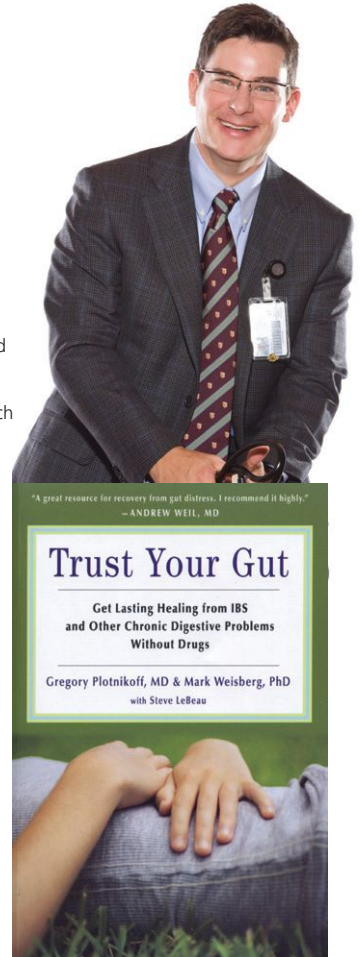
Over the years, Plotnikoff had been reading emerging research about how the five forms of stress (environmental, physical, emotional, pharmaceutical and dietary) trigger adverse neural/hormonal responses. He also became interested in the microbiome—the trillions of microbes needed to maintain a healthy digestive system—and the important role good bacteria play in gut health. With that information in hand, he and co-author Mark Weisberg, Ph.D., a health psychologist, developed a two-pronged approach to helping these difficult-to-treat patients that involves what they've termed "neurohormonal retraining" and "ecological rebalancing."

Their resulting book, *Trust Your Gut*, published last year, lays out their approach. According to the authors, neurohormonal retraining involves becoming aware of one's behavior, symptoms and feelings and then learning techniques for rewiring one's responses. "There is an

anticipatory dread that plays a big role for people who've long suffered," Plotnikoff explains. "You feel your stomach gurgle and you think, 'Oh no. What's next?' That dread precipitates further symptoms." Ecological rebalancing involves tending to the gut's good bacteria through diet, adequate sleep and supplementation. He emphasizes that once serious illness is ruled out, there's much people with intestinal problems can do on their own to help themselves.

Plotnikoff hopes the book reaches a wide audience. "So many people I see have suffered for decades," he says. "Functional bowel issues are really a leading cause of missing work and missing life. We want people to get their lives back and to do so without becoming more dependent on the medical system."

In *Trust Your Gut*, Greg Plotnikoff and his co-author take a mind-body approach to chronic digestive problems.

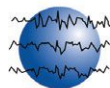


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PHOTO BY KATHRYN FORSS

Kim Turinske, M.D., provides primary care with a preventive spin to members of Minnesota's pipe trades unions and their families.

## Plumbers, pipefitters AND preventive medicine

A local labor organization takes a novel approach to improving the well-being of its members.

BY KIM KISER

The sign on the door leading back to the exam rooms in Pipe Trades Services of Minnesota's Family Health and Wellness Center in White Bear Lake is the first clue that this is no ordinary medical clinic: "No deductible, no co-pay, just a commitment to improve your health," it reads.

Behind the door, a physician works alongside a chiropractor, appointments run 30 or 60 minutes, and patients can be seen for minor illnesses and injuries as well as preventive care. They also can receive generic prescriptions from a small pharmacy without having to pay a dime. "They're safe under this roof. They know

they won't have any extra charges," says Kim Turinske, M.D., currently the only family physician who works at the clinic.

The White Bear Lake clinic, housed in a nondescript medical office building, has been open for about a year and is one of two in the Twin Cities run by Pipe Trades Services of Minnesota, the organization that administers the pension, employee wellness program and self-insured health fund for many of the state's pipe trades unions. Its sister clinic in Maple Grove opened in March of 2013. Together, they serve approximately 16,000 union members and their families. Jim Hynes, executive administrator of Pipe Trades Services, came up with the idea for the clinics after looking at the money they were spending on health care each year. "We process and pay \$50 million to \$60 million in medical claims. We looked at those claims and thought there had to be a better way for us to try to serve our participants," he says.

He convinced his board of directors that the better way was to focus on preventing costly health problems. "I don't think today's system is based on values and outcomes; it's based on volume," he says.

The concept of trade unions opening hospitals and clinics for workers dates back to the early 20th century. In 1913, the International Ladies' Garment Workers' Union opened a health center in New York City. About the same time, the Western Federation of Miners established a network of hospitals in areas with significant mining activity.

In doing his research, Hynes found only a handful of union-affiliated clinics in existence today: one for teamsters in Milwaukee, another for commercial food workers in Chicago and one for culinary workers in Las Vegas. And the focus of those clinics, he observed, was not on preventive medicine. "They are there for convenience as much as anything," he says. "They're not trying to get ahead of chronic conditions and change behaviors."



## A unique population

Minnesota's pipe trades unions represent plumbers, pipefitters, sprinklerfitters, gasfitters, and HVAC and service technicians. About 99 percent of their members are male. Most of them are middle aged, and many have followed grandfathers, fathers, brothers and uncles into their trade. Most join the union when they finish their schooling and apprenticeship and remain members for their entire career.

"It's a perfect population for prevention," says Turinske, whose uncle was a pipefitter. "These workers join the union, and they're in the union for more than 20 years. If we start treating them when they're young and coming out of school and prevent diseases, then 20 years down the road, they'll have less diabetes, heart disease, cancers, etc., and their health care fund will be stronger, having saved thousands of dollars on treatment of these diseases. Most importantly, they will have a better quality of life."

Although Pipe Trades Services began emphasizing healthful living and prevention several years before the clinics opened, many union members avoided the doctor's office until a crisis brought them in. Hynes says many men view themselves as big, tough and healthy, "Then at age 55, they have a bunch of problems that are expensive and affect their quality of life."

In order to get those patients in the door sooner, they had to address the reasons they stayed away. Co-pays and deductibles were high on the list. Hynes says when he presented his proposal for the clinics, they discussed a \$10 co-pay for visits. "I like the idea of people having skin in the game," he says. "But if we did it and someone comes in and says 'I don't have \$10, can you bill me?' you can quickly spend \$10 to get that \$10 back."

Hynes also knew people wanted the experience of going to the doctor to be simple. "These guys aren't big on paperwork and computers. They just want to show up and get treated fairly and appropriately," he says. So in order to keep costs

down and processes simple, they decided not to charge union members or their families for services. (Consequently, they don't treat people on Medicare or Worker's Compensation or auto insurance cases, where billing would be required.) They located the clinics in parts of the metro where a large concentration of union members live and work, allowing them to stop in when the clinic is open, even if they don't have an appointment.

Adding to the clinics' appeal are the longer appointments, which help patients to get to know and trust their physicians (who are salaried and not subject to production quotas) and enable physicians to address potential problems. "If someone comes in for a sore throat and their blood pressure is high ... I actually have time to talk to them about a low-sodium diet and other things, such as weight loss, exercise and quitting smoking, that they can do to help their blood pressure other than taking medications," says Turinske, who is also board-certified in bariatrics.

She says the problems that most affect the patients she sees are musculoskeletal injuries, obesity, heart disease and diabetes. "We have a lot of smokers, and we've been able to get more people to quit because we have the medications right here and they get them for free," she says. "I can send them home with lozenges, patches and gum so they don't have to go out and get them and pay for them. That makes them more likely to try to quit."

In addition, all patients sign a wellness commitment in which they agree to establish a relationship with a primary care provider at the Health and Wellness Center, take a healthy approach to eating, exercise, cut out bad lifestyle behaviors, reduce stress and "find ways to create and find joy in life." "It's the cornerstone," Hynes says. "They have to understand that their health is their greatest asset."

## Getting the job done?

Hynes says they appear to be winning people over. "From 99.9 percent of the people

“

If there are any negatives, it's that we need more hours and more locations.”

—JIM HYNES

I talk to, if there are any negatives, it's that we need more hours and more locations," he says.

Pipe Trades Services is looking at opening two more clinics in the south metro and plans to hire a pharmacist early this year to offer medication reviews and counseling. (Hynes says several other local unions have expressed interest in sending their members to the clinics; in addition, representatives from labor unions elsewhere in the United States have asked to tour the facilities.)

Many of those who use the clinic are taking the wellness challenge to heart—and are starting to see results. Hynes tells of a 43-year-old man who showed up at the clinic for the first time because he woke up with pain between his shoulders. When the pain started radiating down his arm, 911 was called. "When the guy got to the hospital, we found out he hadn't been to a doctor in 10 years. He had diabetes he didn't know about and he was having a heart attack." Since then, the man has lost 15 pounds, quit smoking and found a support network at the clinic, where he regularly comes for follow-up care.

"It's changing behaviors," says Hynes, who takes the long-term view on the preventive care being offered at the clinics. "And for this group, it means changing the culture. It doesn't happen overnight, but it's something we're working on." MM

Kim Kiser is an editor of *Minnesota Medicine*.

# Public-MINDED

Three physicians step outside their offices to focus on the health of their communities.

BY SUZY FRISCH

Physicians are trained to help individual patients stay healthy or recover from ailments. And most thrive doing that. But for some, that's just not enough. They want to have a broader and deeper impact on the health of the public at large.

Doing so is not as easy as it sounds. Doctors face challenges at every turn. They must devote extra time, find willing partners and secure funding. Then there's the question of how to communicate with the public.

Talk to physicians involved in public health, though, and they'll say the extra effort is worth it because they're reaching people who avoid doctors' offices, inspiring them to take action and preventing a legion of health problems.

More than a few Minnesota physicians have gotten the public health bug in recent years. Here are the stories of three of them and the projects with which they've been involved.

## The Heart of New Ulm

Ask New Ulm residents what's best about their city and the usual response is beer, brats and butter (all are made in town). With strong German roots and a love of festivals, city residents enjoy the products of their labors. Perhaps too much. Until a few years ago, they had somewhat higher-than-average rates of smoking, obesity and metabolic syndrome, and too many were sedentary.

Officials at Allina Health, the only health care provider in this town of 13,500, knew their patients were at risk for cardiovascular disease and started talking with leaders from the Minneapolis Heart Institute and its foundation about working together to address the problem, as 90

percent of the area's residents used Allina's New Ulm Medical Center for their care. So in 2008, Allina and the Minneapolis Heart Institute Foundation launched a 10-year effort aimed at preventing cardiovascular disease in New Ulm. Called Hearts Beat

Back: The Heart of New Ulm Project, it involves community education, medical intervention and environmental change.

Early on, those involved realized they needed a local doctor to connect the medical, research and community components.





Although family physician Charles Stephens, M.D., didn't have a background in research or public health, he agreed to serve as medical director. "It seemed like a good idea. Being a primary care doctor, I see people who have heart disease and obesity all the time," he says. "We need to move treatment upstream and cut down on people having heart attacks."

Stephens joined about 35 other medical and community leaders on the Heart of New Ulm Project's steering committee and agreed to act as the medical face of the campaign. Describing himself as a cheerleader for the project, he promoted it on television and in the newspaper and spoke to community groups. He also attended numerous planning meetings, worked to line up partners, and helped plan various initiatives and events to educate physicians and other health care providers about the latest research on cardiovascular disease.

Stephens has encouraged residents to exercise and eat healthfully. He also practices what he preaches: "People know me as the nut on the bicycle here because I ride my bike to work. I'm happy to be visible that way. If it tweaks someone to make a good decision, I'm happy with that," he says.

The efforts are paying off. Since 2009, more than 5,000 residents have been screened for heart disease (LDL, HDL, triglycerides, total cholesterol), diabetes (fasting glucose), coronary artery disease (hs-CRP) and kidney function at events held at workplaces, the medical center, the community center, recreation centers and churches. And, over the last four years, 20 percent of the community has lost 10 pounds or more, Stephens notes. In addition, the percentage of people ages 40 through 79 with hypertension dropped from 20.6 percent to 17.9 percent, while the percentage of residents with high cholesterol levels declined from 10.8 percent to 8.6 percent. Because Allina has a robust electronic health record system, it has been possible to track patients' health measures and the results of interventions.

Stephens says his patients like to credit him for their weight loss. But he says the initiative and communitywide support



Patrick Zook, M.D., at the Central Minnesota Immunization Campaign kick-off.

were the keys to their success. "I can't take credit," he says. "The idea is to put out multiple options for people so they can find what works for them. We're seeing improvements here, but as our hospital president says, this is not a program that has a completion date."

### Preventing pertussis

Minnesota was experiencing a resurgence of pertussis when Patrick Zook, M.D., heard Mayo Clinic pediatrician Robert Jacobson, M.D., speak about vaccine resistance to a group of area doctors in 2012. That talk got him thinking that more people in his St. Cloud community needed to get vaccinated if they were to prevent the spread of the disease often called whooping cough. Even though Zook, a family physician, was unfamiliar with leading public health campaigns, he decided to meet the pertussis outbreak head on.

Tapping into his experience as president of the Stearns Benton Medical Society and in leading other organizations, Zook pulled together a group of medical, public health, civic and business leaders willing to address pertussis and other public health issues in the area. In just a few months, he had enlisted about 25 members, and together they secured two \$10,000 grants—one from the CentraCare Foundation and the other from the Stea-

rns Benton Medical Society. In May of 2013, they launched a year-long campaign targeting residents in Stearns, Benton and Sherburne counties and promoting the importance of getting vaccinated against

“

Knowing we can design community-based programs that prevent 1,000 heart attacks in the state each year helps me come to work and feel like I'm fulfilling my role as a physician.”

— ALAN T. HIRSCH, M.D.



pertussis. Called the Central Minnesota Immunization Campaign, it features posters with different people from the community, including St. Cloud Mayor Dave Kleis, showing off their post-vaccine bandaged arms.

soon. Yet he doesn't want to walk away completely from the profession he loves.

"Doing projects like this is an excellent opportunity to give my profession a boost," he says, adding that he and the others involved in the campaign (who call them-

of bearing witness to suffering, preventing disease is reinvigorating and rejuvenating."

Started as a pilot project in early 2012, Ask About Aspirin encourages residents to ask their physician whether they should take aspirin. It also trains primary care doctors, nurses and pharmacists to identify patients who may benefit from aspirin use.

As part of the campaign, posters and brochures were placed in area clinics. Billboards, radio ads and social media also were used to communicate the importance of taking aspirin.

The team picked Hibbing because the university has a long history of partnering with Fairview Range, and Hibbing has a supportive community, explains Karen Miller, associate program director of Partners in Prevention, which runs the campaign and is part of the Minnesota Heart Health Program—a collaboration of the university's Lillehei Heart Institute and School of Public Health, the Minnesota Department of Health, local medical providers and others.

After the first year, researchers saw aspirin use jump from 36 percent to 54 percent among the target population—men 45 to 79 years of age and women ages 55 to 79. The numbers were consistent one year later.

The team would like to apply the Hibbing model elsewhere in Minnesota. Ultimately, Hirsch would like see it become a template for addressing other public health issues.

"It's always wise to prevent disease and help communities stay healthy by helping them lower their risks," he says. "When we provide access to accurate information and cost-effective interventions, we all succeed." **MM**

Suzy Frisch is a Twin Cities writer.

One of the billboards that appeared in Hibbing as part of the "Ask About Aspirin" campaign.



They also decided to hold vaccination clinics. To do so, they had to find locations with enough insurance to cover any liability, and they had to investigate regulations for giving medicine in public and who could give the shots. They also had to wade through insurance policies to see how to bill people's insurers for the vaccines. They ended up holding clinics at health expos for seniors, veterans and Hispanics as well as at several summer festivals.

Hundreds of area residents have been vaccinated as a result of the campaign. And Zook's reward has been seeing infection rates drop significantly. According to the Minnesota Department of Health, the three counties had 267 confirmed and probable cases of pertussis in 2012. In 2013, they had 101.

In addition to wanting to improve the health of the public in central Minnesota, Zook had other reasons for getting involved in the campaign. After practicing for 36 years—all of them in St. Cloud—he is preparing to wind down his practice

selves the Circle of Health) plan to tackle other health issues, including medication safety. "We have an exceptional health environment here, and I want to make it better and as strong as possible."

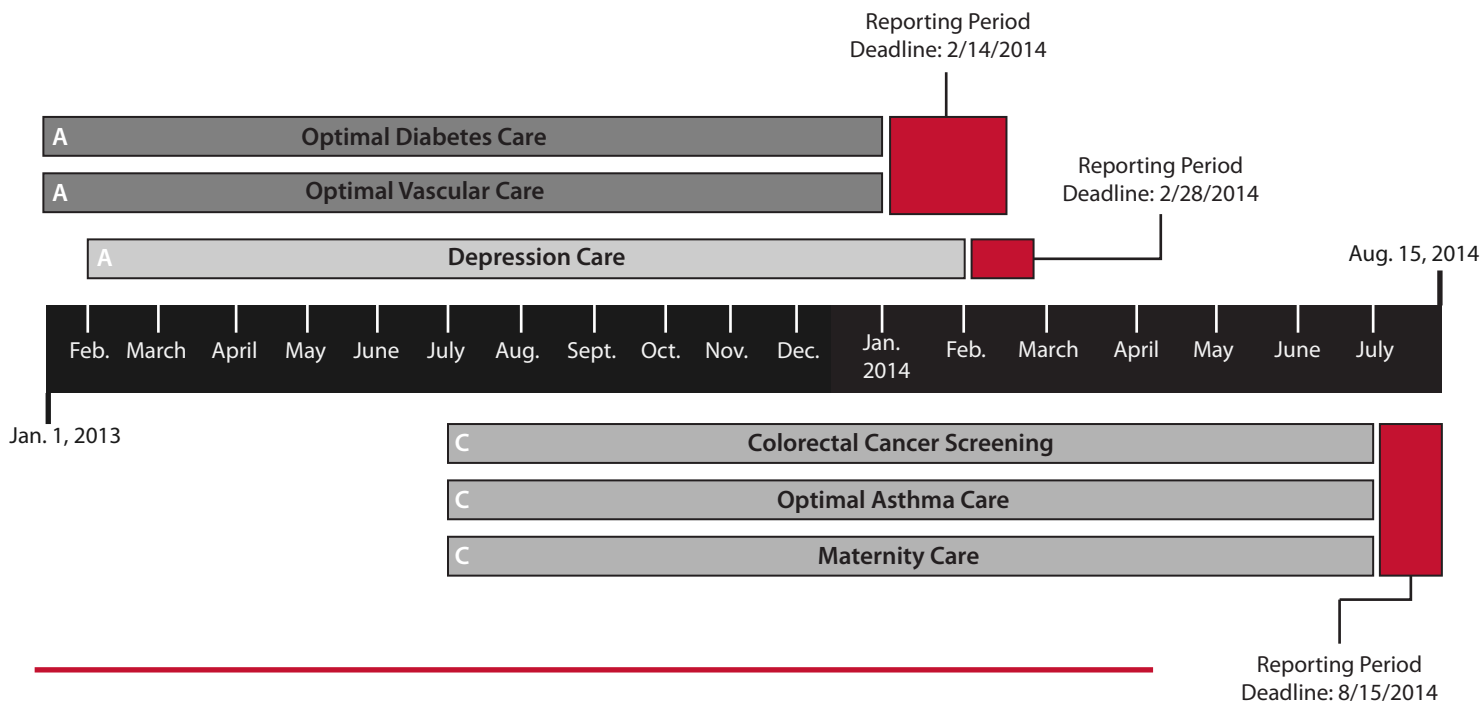
### "Ask About Aspirin"

By the time cardiologist and vascular medicine specialist Alan T. Hirsch, M.D., sees many of his patients, they are critically ill. And although he finds it gratifying to treat them, he knows it isn't enough to only focus on their health during life-threatening events. That's one reason he has been involved with public health projects.

A professor of medicine, epidemiology and community health at the University of Minnesota Medical School and School of Public Health, Hirsch currently leads Partners in Prevention's "Ask About Aspirin" campaign in Hibbing. The campaign's goal is to spread the word that taking low-dose aspirin daily could reduce an individual's chance of having a heart attack and stroke.

"Knowing we can design community-based programs that prevent 1,000 heart attacks in the state each year helps me come to work and feel like I'm fulfilling my role as a physician," he says. "Instead

# Community Measures Simplified



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### ANTIBIOTIC RESISTER

## DIMITRI DREKONJA, M.D.

INFECTIOUS DISEASE PHYSICIAN

VETERANS AFFAIRS MEDICAL CENTER, MINNEAPOLIS

As a specialist in infectious diseases, the primary question I deal with is: Should antibiotics be prescribed or not? Even a casual reader of medical literature knows that a third to one-half of all antibiotics are unnecessary and that this fraction gets even larger for upper-respiratory infections. I've occasionally seen dubious looks on the faces of both providers and patients as I explained that I did not think antibiotics were warranted, that they had a better chance of doing harm than good. Perhaps I've misinterpreted those looks, but the message I've seen in them is "Sure, you say that now, but you know, if this was you or

your kid, you'd have already phoned something in."

Truth be told, I actually do practice what I preach. My kids have had various febrile illnesses—some accompanied by tugging of ears, erythematous tympanic membranes and tonsillar exudates. But to date, they have a combined 13 years of existence without having taken an antibiotic.

I've also taken a semi-public stand on this issue. Several years ago, a colleague and I were invited to give University of Minnesota second-year medical students a lecture entitled "Controversies in in-



# I SAY?

## PEDAL PUSHER

### TOM KOTTKE, M.D., M.S.P.H.

CARDIOLOGIST, MEDICAL DIRECTOR FOR POPULATION HEALTH  
HEALTHPARTNERS, BLOOMINGTON

Do I practice my own advice? You bet! I do so for three reasons:

- I feel better both physically and mentally;
- I want to be the guy with the stethoscope in his ears rather than the guy with the stethoscope on his chest; and
- It legitimizes my message.

As a cardiologist, I advise patients daily about lifestyle, and as HealthPartners' medical director for population health, I help develop programs that make

fectious diseases." We settled on the question, Should group A strep pharyngitis be treated with antimicrobials? My colleague took the "yes" position, and I argued "no." Although pre-1970 trials showed that treatment could reduce the complication of rheumatic fever, numerous trials since then have demonstrated that rheumatic fever is a vanishing disease, with no cases in either the placebo or the antibiotic groups among several thousand patients. As luck would have it, the week of the lecture, I developed a sore throat, lymphadenopathy and fever. A throat culture grew 4+ *Streptococcus pyogenes* (group A strep). Thinking this was the perfect visual hook, I concluded my talk with a display of my positive blood agar plate and assured the audience that all I had taken was acetaminophen and that I was feeling completely well. At the end of the lecture, the class was asked to submit their yes/no vote on the use of antimicrobials. I lost overwhelmingly.

healthy lifestyles the easy choice for our patients, our members and the community.

My advice is to focus on five things:

- No tobacco or exposure to tobacco smoke
- At least five servings of fruits and veggies per day (and as close to a vegetarian diet as tolerated)
- Adequate physical activity
- Limited alcohol
- Daily expression of appreciation.

In my clinical practice, nearly all of my patients ask me what I eat and what I do for exercise; they want to make sure that they not are getting a "Do as I say and not as I do" message.

Have I always lived this lifestyle? Not really. I was a social smoker in college; but nicotine made me ill and the 35 cents for cigarettes seemed like a waste. Although I only participated in competitive sports briefly in high school, I have always loved bicycling and have been active for most of my life. To make activity more convenient, my wife and I have always chosen homes that are within riding distance of work, allowing me to bicycle safely throughout the year.

I can honestly say that my diet is much better than when I was a child. I grew up in Minnesota in the "Eat your meat, drink your milk and don't expect to eat fruit out of season" generation. I never leave home without eating a breakfast of fruits, nuts and berries. Lunch is vegetarian, too. My pre-dinner snack is a serving of almonds with a glass of beer or wine. Supper is multiple servings of veggies with fish or sometimes a small amount of chicken or beef. Dessert is berries and a little chocolate. No evening snacks, no eating between meals. At the end of the day, I make a point of reflecting on three good things that happened that day.

Life is good when I follow my own advice, and I appreciate that!



## CHANGE AGENT

MUSTAFA ORHAN  
UCER, M.D.

NEUROLOGIST/SLEEP MEDICINE SPECIALIST  
HEALTHPARTNERS SPECIALTY CENTER, ST. PAUL

I work in sleep medicine, and the majority of my patients have obstructive sleep apnea, a condition closely related to being overweight. One of the most common treatments I recommend is weight loss, but for years, I couldn't look in the mirror without feeling that my own weight was heading in the wrong direction. I was out of shape and heading toward a very unhealthy future.

Then, a few things fell into place.

First, the medical group I work for began promoting healthy living as an incentive to reduce insurance co-pays. As part of that, I read the book *The Blue Zones* by Dan Buettner and realized that I had to be more active and keep my life simple.

Second, a patient of mine lost 80 pounds in one year, and his sleep apnea was gone. I asked him how he did it and he said he ate a small portion of food every hour or so and did not feel hungry. That helped lower his daily calorie intake. After talking with my primary care physician and a dietitian, I found a daily calorie amount that might help reduce my weight. I started eating a small, 100-calorie snack every two hours or so, in addition to reducing my meal portions. This by itself only partially helped me lose weight.

I also had to burn more calories, so I decided to start running.

I was never a runner. At home, we had a treadmill covered with dust bunnies. I started by walking three 10-minute cycles—first a two-minute slow walk, then a five-minute fast walk, then a two-minute slow walk. Then I bit the bullet and ran 100 steps. It took me about a minute, and I almost collapsed, but I persisted. Over the course of a year, I was gradually able to run longer distances. On Thanksgiving Day 2012, I ran a 5K. Last year, I partici-



pated in the Susan G. Komen Race for the Cure, and I ran it barefoot.

Over the past two years, I've lost 30 pounds and I feel as if I am 15 years old again (I am 51). I continue to increase my distances gradually, and this past summer, I ran about 13 kilometers barefoot.

I am by no means as athletically accomplished as some of my colleagues, but I've undergone an incredible transformation in the past two years. My health has significantly improved as well.

Here are messages that I give patients and now most certainly follow myself:

- Eat small portions or healthy foods frequently (complex carbohydrates, fruits, fish, skim milk, nuts and water). I use chocolate as a treat.
- Try to exercise four to five times a week and pay attention to rest time, which is as important as exercise.
- Get adequate sleep. It helps with weight loss. I try to sleep about eight hours or more each night.
- Keep a simple routine and make spending time with family (I have two young sons) a big part of it.
- Be persistent. Don't give up.

If I can do it, believe me, anybody can.

PERSONAL  
PROMOTERVIRGINIA R.  
LUPO, M.D.

CHAIR, OBSTETRICS AND GYNECOLOGY  
HENNEPIN COUNTY MEDICAL CENTER,  
MINNEAPOLIS

I truly believe that exercise can be life-changing, and I wish I could prescribe it for everyone. I do strength training twice a week. As I see it, good posture, balance, great core stability and knock-out triceps—so wearing a sleeveless dress is always an option—are incredible benefits. I think taking vitamin D every morning in the winter is like taking a tablet of sunshine. I tell patients to take it and do the same. How can you not start the day in a good mood if you just had a pill full of sunshine?

I try really hard to help pregnant women see that breastfeeding can be one of the coolest things on the planet after carrying a baby for nine months. When I did it with my little boys—the experience was so moving and beautiful. I remember there were times in the middle of the night, alone with a little baby nursing, that brought me to tears. (Later on, when my two boys were in high school, there were other things to think about in the middle of the night that were a little scarier.)

I also think getting immunized is tremendously important. Vaccines are one of the miracles of the last millennium and have reduced the burden of disease in the world far beyond the wildest imaginings of people in the past. I even got a smallpox vaccination about 10 years ago when our



hospital offered them. Denying the benefits of immunizations is terribly sad. It reflects ignorance about their impact on diseases that literally took our grandparents' lives and caused unnecessary suffering.

There are things that I would never touch, after learning about them and seeing their effects on patients: weight-loss supplements, any surgery that isn't really necessary (I've seen complications from just about every procedure imaginable),

cigarettes and unpasteurized dairy. These things just aren't pretty.

Finally, I think that screening for breast and colon cancer can't be argued against in large populations, and populations start with a single person, so I do them.

MR. SAFETY

DAVID PARKER, M.D.

OCCUPATIONAL MEDICINE PHYSICIAN  
PARK NICOLLET CLINIC, MINNEAPOLIS



I travel extensively throughout the world—often photographing people in dusty, heavily populated or highly polluted areas. I always have a mask with me and never hesitate to put it on.

I won't lift more than 30 pounds or so and only do shared lifting. When I travel on airplanes, I routinely get up and walk around. I'm a big believer in noise protection and wear noise-reducing ear muffs while mowing the lawn or using my snowblower.

Years ago, I learned from experience—namely, getting poked a few times, without incident—that nonsterile needles could be an occupational hazard for me. I decided I would never again touch them. Since then, I've used forceps to remove them and

put them on the tray so my hand and the contaminated needle never, ever come in close contact.

There are other areas where I am not always so diligent. For instance, do I follow my own advice regarding ergonomics? My wife would tell you unequivocally "no." She thinks my desk at home is horrid—the screen is too high and my chair is not properly positioned—but I'm usually not at my desk for long periods of time, either.

I am sure there are other safety and health guidelines that I don't always follow. My wife frequently points out my transgressions, following it up with, "And you call yourself Mr. Safety!" All I can say is, I do what I can.

SUN SHIELDER

JULIE SCHULTZ, M.D.

DERMATOLOGIST  
AFFILIATED COMMUNITY MEDICAL CENTERS, WILLMAR

All summer, I worry about my fair-skinned children. I worry about long-term damage: the wrinkles, leathery skin and skin cancers that I see every day on my middle-aged and older patients. Minnesota summers are too short, after all, and who wants to bother with sun protection?

Professionally, I advise wearing long-sleeved clothing and full-brimmed hats when you're outside. But people, especially kids, hate sunblock. It stings the eyes; it's messy; and it stains clothes and upholstery. People often don't use enough and forget to reapply it. One summer at the lake, when my kids were too young to protest, our family looked like the Blue Man

Group in our matching, skin-tight, full-body swimwear.

Those days are gone, and I've learned to compromise. Now we all just wear long-sleeved swim-shirts over our suits. Fortunately, these "rash guards" are in fashion, so everyone can pick their style (we don't have to match). I'm also firm about sunblock on the face. Getting my children to apply it takes diligence on the part of my husband and myself. My daughter grudgingly applies it in stick form, so it won't run into her eyes. My son wears a baseball cap and also resists sunblock. My husband dislikes hats of any sort. I wear a crushable, wide-brimmed cotton hat. We

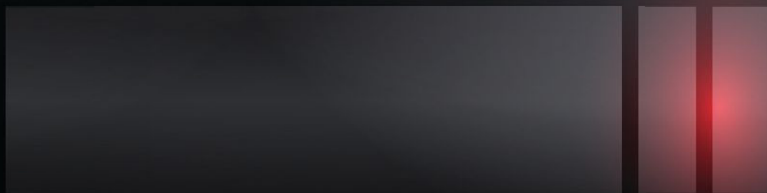
outfitted our boat with a canopy that keeps us in the shade for at least part of any water outing.

There's one thing I hope my kids avoid at all costs: tanning beds. When springtime arrives—and as prom approaches—I observe many teenagers getting darker by the day. If only they knew the kind of damage they are doing to themselves. **MM**





# Promise



Or

## peril?

The jury is out on the safety of **e-cigarettes**.

BY HOWARD BELL

**B**obbi Kruse, a program administrator at the University of Minnesota Medical Center, Fairview, smoked cigarettes for 38 years. “I enjoyed smoking and had no desire to quit,” she says. But last July’s price hike that came as a result of an increase in the state’s tax on tobacco products pushed her over the edge. Rather than give up cigarettes altogether, she switched to less expensive e-cigarettes. “I have no cravings and still get the enjoyment of smoking without smoking,” she says.


Kruse is among a growing number of e-cigarette users. According to the Centers for Disease Control and Prevention (CDC), one out of every five cigarette smokers say they have tried e-cigarettes. E-cigarette sales in the United States exceeded \$1 billion in 2013, doubling since 2012, and tobacco companies are placing big bets on them. A Wells Fargo market analysis predicts e-cigarette sales may exceed tobacco cigarette sales in 10 years. Three U.S. tobacco companies have already bought brands and deployed their consid-

erable marketing muscle, unfettered by regulation, to glamorize e-cigarettes through celebrity endorsements, TV and print ads, online ads, social media, NASCAR sponsorships and product giveaways.

The rapid rise of e-cigarettes prompts the question—Are we beginning a new chapter in the fight against smoking?

Although some question their safety, others view e-cigarettes as a legitimate tool to help tobacco smokers kick the habit. As Mayo-Scottsdale’s Cancer Prevention and Control Program co-director Scott Leischow, Ph.D., sums it up: “We are in the midst of a national experiment that could dramatically lower the risks of smoking.”

### Playing with fire?

Electronic cigarettes are battery-operated devices that often look like regular cigarettes. Invented by a Chinese pharmacist in 2004 as an aide for quitting smoking, they have been sold in the United States since 2007 and generally cost less than half the price of regular cigarettes. 

# Drug delivery devices

E-cigarettes are legally defined as tobacco products, but in reality they're drug-delivery devices. Between 2008 and 2010, the Food and Drug Administration (FDA) tried to regulate them as such because manufacturers were claiming e-cigarettes could help people quit or cut back on tobacco cigarettes.

One e-cigarette maker sued the FDA in federal court, which ruled in 2010 that e-cigarettes can only be regulated as tobacco products under the 2009 Family Smoking Prevention and Tobacco Control Act unless the manufacturers make therapeutic claims. In September 2010, the FDA sent letters to several e-cigarette makers warning them to stop making unsubstantiated claims that e-cigarettes can help people stop smoking tobacco.

"If the FDA had gotten its way and regulated e-cigarettes as a drug-delivery device, the e-cigarette makers would have to fund at least three randomized clinical trials that prove they're safe and effective," says Richard Hurt, M.D., director of Mayo Clinic's Nicotine Dependence Center.

Instead, the FDA is expected to eventually regulate e-cigarettes as tobacco products, which means there will be rules about what they contain and how they're made and marketed, but they will not be subjected to the "safe and effective" standards used for drugs and medical devices—as long as manufacturers don't make claims that they help people quit or cut back on tobacco smoking.

Puffing an e-cigarette activates a heating element that vaporizes a solution of nicotine (the cartridge in the "filter" end of an e-cigarette can contain as much as 24 milligrams), flavoring (eg, bubblegum, cookies and cream, fruit punch) and propylene glycol into a cloud that looks similar to tobacco smoke. An LED light, usually blue, green or orange, at the tip of the battery glows like the end of a tobacco cigarette. Because they produce vapor instead of smoke, using e-cigarettes is often referred to as "vaping."

Although e-cigarettes contain far fewer toxins and carcinogens than tobacco cigarettes, no one has the answer to the safety question yet, says Kola Okuyemi, M.D., M.P.H., who researches e-cigarettes at the University of Minnesota in his role as director of the university's Program in Health Disparities and the Minnesota Center for Cancer Collaborations. "We just don't have the science to answer these questions, and until the FDA starts regulating the content of e-cigarettes, researching these questions is going to be hard."

That's because each of the 250 e-cigarette brands sold today contains a different amount of nicotine as well as other chemicals. Literally no two are alike. "Right now," says Okuyemi, "we're living in an e-cigarette Wild West, with no laws controlling their sale, content, advertising or manufacturing process."

In July of 2009, the Food and Drug Administration analyzed a small sample of e-cigarette cartridges from two leading brands and found they contained nitrosamines, a known carcinogen, and heavy metals, but in far lower amounts than are found in regular cigarettes. One cartridge contained diethylene glycol, a toxic chemical used in antifreeze.

Propylene glycol and the flavor chemicals used in e-cigarettes are generally recognized as safe for use in food. But no big studies have been done on what happens when these chemicals are vaped. One study presented at the European Respiratory Society in 2012 showed that e-cigarettes can cause airway irritation and inflammation in some users at least for a short period after vaping. A 2012 case report published in the journal *Chest* described a 42-year-old woman with asthma who developed a rare lipoid pneumonia, causing chronic dyspnea and a cough that began when she started using e-cigarettes. "We know propylene glycol causes airway irritation in some individuals," Okuyemi says. But studies so far show that the vapor produced by e-cigarettes is not inhaled deeply into the lung, nor does it produce an arterial spike of nicotine the way smoke from cigarettes does.

Another 2012 study, published in *Toxicology*, found the flavorings used in e-cigarettes contained cytotoxins in amounts that ranged from very low to "fairly significant," depending on the brand and flavor. The amount of nicotine varied widely as well. And yet another 2012 study, published in *Tobacco Control*, found that nicotine levels in 35 different brands were often lower and sometimes higher than what the label listed. Three different e-cigarette cartridges of the same brand each produced a different amount with each puff.

The same study found six toxic chemicals in e-cigarettes, but the amounts were far less than those found in regular cigarettes. For example, formaldehyde concentrations were nine times higher in tobacco cigarettes, and acetaldehyde was 450 times higher than in the e-cigarettes tested. Likewise, the volatile organic compounds acro-



lein and toluene, and two types of nitrosamines were all present in e-cigarettes, but in far smaller quantities than in tobacco cigarettes. The researchers concluded that “substituting tobacco cigarettes with e-cigarettes may substantially reduce exposure to selected tobacco-specific toxicants.”

“Tobacco cigarettes contain more than 7,000 chemicals,” says Richard Hurt, M.D., director of Mayo Clinic’s Nicotine Dependence Center. “Sixty of them cause cancer. E-cigarettes contain two to three tobacco-specific carcinogens.”

Hurt says that although we can say with certainty that e-cigarettes contain fewer toxins than tobacco cigarettes, it doesn’t mean they’re safe or don’t cause harm. “We haven’t studied the short-term health effects enough, and we don’t have any studies on long-term effects,” he says.

### A better way to quit?

Whether e-cigarettes are a good way to help people quit smoking remains to be seen as well. A 2013 New Zealand study published in *Lancet* concluded that e-cigarettes worked as well as nicotine patches in helping people stop smoking tobacco cigarettes. The study’s authors divided 657 adult smokers who wanted to quit into three groups: one that used nicotine patches, one that used e-cigarettes and one that received a placebo (e-cigarettes with no nicotine). Seven percent of the e-cigarette users quit for at least six months, compared with 6 percent of nicotine patch users and 4 percent of the placebo users.

The study got a lot of positive media attention, but Hurt points out its limitations. “If there’s not a doubling of the quit rate compared to placebo, then the nicotine-containing e-cigarette would not be considered effective,” he says.

After six months, one-third of participants continued using e-cigarettes. Many who relapsed to smoking tobacco also kept using e-cigarettes and so significantly reduced their tobacco cigarette consumption. In addition, nine out of 10 people in the e-cigarette and placebo groups said they would recommend e-cigarettes to

friends trying to quit, where only 56 percent of the patch users said they would recommend patches.

Okuyemi found similar preferences among 50 African-American adults enrolled in his ongoing menthol cigarette quit study. “When we let people choose from different ways to quit, three out of four choose e-cigarettes,” he says. “They may be more appealing because they’re more like smoking than patches, sprays or lozenges. We can’t ignore this. If it can be shown that switching to e-cigarettes helps lots of people quit or cut back on tobacco cigarettes, we’re going to have to take a serious look at e-cigarettes.” ➔

## What should physicians tell patients?

The considerable debate within the scientific community about the pros and cons of e-cigarettes makes knowing what to say to patients a challenge. Kola Okuyemi, M.D., M.P.H., director for the University of Minnesota’s Program in Health Disparities and the Minnesota Center for Cancer Collaborations, says an honest discussion with patients has to include mention of potential benefits and harms.

### Potential benefits:

- E-cigarettes are less toxic and, therefore, presumably less harmful than tobacco cigarettes.
- Studies show there is a good chance that you will reduce the number of tobacco cigarettes you smoke if you switch to e-cigarettes. It’s possible, but far less likely, that you will completely quit smoking.
- E-cigarettes are cheaper, cleaner and generally less annoying to others.

### Potential harms:

- You may end up using both e-cigarettes and tobacco cigarettes. There is some evidence that using both makes it less likely you will quit tobacco.
- E-cigarettes contain known carcinogens and other potentially harmful ingredients whose long- and short-term effects on health have not been adequately studied.
- You will remain addicted to nicotine.
- Nicotine is a potential poison. (Physicians should remind e-cigarette users with young children that they should treat e-cigarettes as they do other poisons and keep them out of reach.)

Richard Hurt, M.D., director of Mayo Clinic’s Nicotine Dependence Center, tells patients who want to quit that there are other products available that have been proven to help stop smoking. “All of them have gone through clinical trials that show they’re safe and effective. When used in combination with counseling, they increase your chances of quitting even more. Try those first.”

Okuyemi says if nicotine replacement therapies (NRT) and other quit methods worked better, e-cigarettes might not even be considered as a possible quit device. “The fact is we don’t have any good quit treatments. They’re all lousy.” He points out that even if e-cigarettes aren’t any more effective than other quit methods, they may work better simply because more people may be willing to try them and stick with them because they satisfy the psychosocial reasons people smoke.

One way to improve e-cigarettes as a quitting aide is to enable them to deliver nicotine into the arterial blood more efficiently. In the New Zealand study, e-cigarettes delivered only about 20 percent of the nicotine delivered by an equivalent amount of cigarette smoking. For this reason, smokers using e-cigarettes to quit may find them ineffective. Phillip Morris and British American Tobacco Company both recently purchased nicotine inhaler technology that promises “pulmonary delivery.”

“We would love to have a metered dose nicotine inhaler to help people quit,” Hurt says. “If we had such a device that was safe and effective, we would use it to help people stop smoking tobacco. They’d still be addicted to pure medicinal nicotine, but studies show no serious harm from medicinal nicotine.”

## Poison control centers see increase in e-cigarette calls

When misused, e-cigarettes can cause adverse reactions and injuries. Nationwide, poison control centers are reporting an increase in calls, either for ingesting cartridge liquid or getting it on skin, where the nicotine it contains is absorbed and can cause adverse effects. “Six milligrams of nicotine is enough to kill an infant,” says Richard Hurt, M.D., director of Mayo Clinic’s Nicotine Dependence Center. “Most cartridges contain a lot more than that. The refill bottles contain enough nicotine to kill an adult.”

In 2012, the Hennepin Regional Poison Center received eight calls about e-cigarettes; in 2013 it received 65 calls, says director Deborah Anderson, Pharm.D. Almost half of those calls were about children 5 years of age and younger who drank the cartridge fluid. In a few, an adult accidentally swallowed the fluid when the cartridge tip came off while they were vaping.

Consumers also may report adverse events to the Food and Drug Administration ([www.fda.gov/Safety/MedWatch/default.html](http://www.fda.gov/Safety/MedWatch/default.html)).

Before e-cigarettes can become a legitimate way to quit tobacco smoking, far more research is needed not only to determine their harmfulness but also to determine if they may actually encourage tobacco smoking or make it harder, rather than easier, to quit tobacco. “There is some evidence,” Okuyemi says, “that tobacco cigarette smokers who try e-cigarettes are more likely to be unsuccessful quitters compared to smokers who never tried e-cigarettes.” The CDC fears that “if a large number of adult smokers start using both traditional and e-cigarettes, rather than quitting tobacco, there will be a net negative public health effect.”

Another concern is whether e-cigarettes are a gateway to tobacco cigarettes, especially for young people. A 2013 University of Oklahoma survey of 1,300 college students concluded that e-cigarettes are not. “For now,” Okuyemi says, “the idea that e-cigarettes are a gateway to tobacco cigarettes is pure speculation. What we do know is that many tobacco smokers who start using e-cigarettes end up smoking both, but they smoke fewer tobacco cigarettes than they used to.”

Dorothy Hatsukami, Ph.D., a professor of psychiatry at the University of Minnesota who is studying toxin intake among users of e-cigarettes, believes e-cigarettes may have benefits over tobacco cigarettes. “If e-cigarette product standards are imposed, if e-cigarettes don’t prompt former tobacco smokers to start again or keep smokers who want to quit from quitting, and if they don’t tempt nonsmokers to start smoking tobacco, I think public health may benefit from these products,” she says. However, until more studies shed more light on these “ifs,” the CDC’s official stance is that “there is no conclusive scientific evidence that e-cigarettes are an effective way to quit tobacco smoking long term.”

### Taming the Wild West

For e-cigarettes to earn a halo of legitimacy, they must be regulated. The FDA has the authority to regulate them as tobacco products but as of yet has not done so, although it sent a proposed rule to the



Office of Management and Budget last fall. “What the FDA should do,” Hurt says, “is regulate the contents to minimize public harm.” That includes eliminating flavorants that can appeal to children.

States, too, are acting on e-cigarettes. Minnesota has prohibited e-cigarette sales to minors since March 2011, under the state’s Tobacco Modernization and Compliance Act of

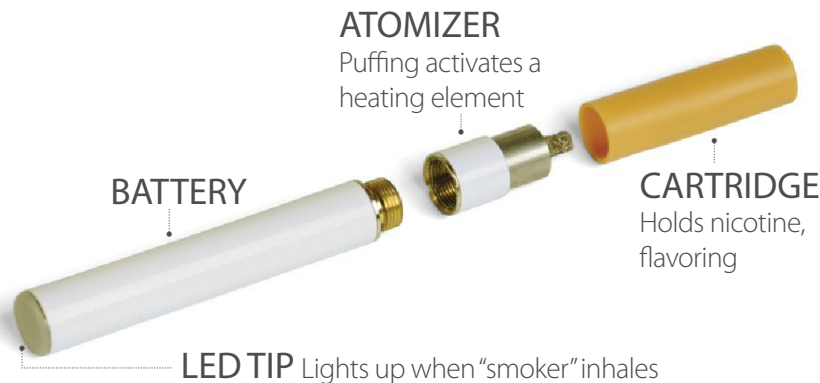
2010. The state also taxes e-cigarettes as tobacco products and requires e-cigarette sellers to have a license to sell tobacco.

State law still allows indoor use of e-cigarettes because vaping does not meet the definition of smoking in the Minnesota Clean Indoor Air Act. “Allowing substances with unknown harm into our indoor air is a huge step backward,” says Mike Sheldon, communications director for ClearWay Minnesota, a not-for-profit that sponsors smoking research and provides smoking-cessation programs. For that reason, Rep. Phyllis Kahn of Minneapolis plans to introduce a bill during the 2014 legislative session that adds e-cigarettes to the Clean Indoor Air law. Such an amendment would ban e-cigarette smoking in all public places.

Meanwhile, local governments are passing their own e-cigarette laws. Last October, Duluth became the first Minnesota city to ban use of e-cigarettes wherever tobacco cigarettes are banned. Restaurant owners asked for it because they found it difficult to enforce Minnesota’s indoor air law because it was hard to tell whether customers were smoking or vaping, says Terrence Clark, M.D., a recently retired pulmonologist at Essentia Health in Duluth, who testified in favor of the city-wide ban.

Duluth officials also banned smoke shops from offering free samples. So did

## Components of an e-cigarette



officials in Mankato. Housing authorities in St. Cloud, Eveleth and Worthington include e-cigarettes in their smoke-free housing policies. Bemidji requires e-cigarette sellers to have a tobacco seller’s license, and Beltrami County prohibits e-cigarette use wherever regular cigarette use is prohibited. Hennepin County Technical College and Target Field prohibit e-cigarette use on their grounds indoors and out.

If Kahn’s indoor vaping bill passes, it will help eliminate inconsistency and confusion over the patchwork of local ordinances and workplace rules.

Big tobacco companies fully expect e-cigarettes to be regulated, and some welcome it as a way to eliminate competition from smaller manufacturers who may not survive all the regulatory hoops, Okuyemi says. Until then, e-cigarette makers will be selling the “coolness factor” of vaping to young people, having all their marketing spigots open while they can.

Hurt believes the FDA needs to walk a fine line by regulating e-cigarettes without over-regulating them. “We need to minimize the harm and maximize the potential public health benefits by allowing people to use quality-controlled e-cigarettes, but only if research shows they’re safe and help smokers quit cigarette smoking, the effect of which we know in the U.S. is the equivalent of three fully loaded 747s crashing every day of the year with no survivors,” he says. E-cigarettes may help do that—but only if their promise outweighs their peril. **MM**

Howard Bell is a medical writer and frequent contributor to *Minnesota Medicine*.



**M**aking Minnesotans the healthiest people in the nation requires focused effort. That's a tall order in a health care world that seems to change by the minute. The MMA's public health committee is doing its part to understand the public health issues of today, support local programs that are making a difference and advocate for statewide improvements.

"The committee is a way to engage around an issue," says Laurel Ries, M.D., committee chair. "We look at the issue and the evidence behind it and provide a way for physicians to influence how community needs are being addressed."

### Still topping the list

Although health care has seen tremendous change with the implementation of the Affordable Care Act, the top public health concerns have remained fairly consistent, Ries points out. Obesity remains high on the list. In fact, last year the AMA voted to recognize obesity as a disease state requiring a range of interventions.

"The problems underlying obesity generally take place outside of a clinician's office, although the clinician does have influence," Ries says. "If we can support expanded treatment of obesity and support public health infrastructure that makes it easier for people to have healthy lifestyles, it will go a long way. The AMA recognition gives us a little more leverage to make those changes."

The Minnesota Department of Health (MDH) reports nearly



# Advocating for the greater good

## How the MMA is diving into public health issues

two-thirds of adults in the state are overweight or obese, which means obesity will remain a public health concern for years to come. The MMA public health committee will continue to explore how team-based care, clinic policies and procedures, environmental changes and community intervention programs can make a positive impact on obesity rates.

Diabetes, which often is related to obesity, is another public health concern. MDH statistics show the number of cases of diabetes in the state has doubled in the past 20 years. Ries believes one of the strengths of the MMA is its ability to help make treating patients with obesity and/or diabetes easier for physicians. "The MMA can't fix obesity and diabetes in Minnesota, but we can support the people making changes," she says. "All physicians want to help their patients with obesity and diabetes, and we can help them find tools and access to resources in their communities."

Ries believes Minnesota's best chance for reducing obesity and diabetes rates lies in helping people change their lifestyle. "I see a lot of interest around healthy foods and creating communities that are more active," she says. "Ongoing public policy work is where we need to continue to focus."

### A new public health concern

Although Minnesota has always been a leader when it comes to tobacco and smoking-cessation initiatives, electronic cigarettes, also known as e-cigarettes, have generated new concern.

E-cigarettes are battery-operated devices that turn nicotine and other chemicals into a vapor that is inhaled. In the past year, ads for e-cigarettes have been on the rise. Some celebrity-backed campaigns encourage people to "take back their right to smoke." Minnesota, like many other states, bans smoking of tobacco products in public places, including bars and restaurants. But e-cigarettes

fall into a gray area because technically they are smoke-free.

“At the MMA, we know this is an issue we have to be out in front of. This is a product that is becoming much more popular much more quickly,” Ries says. One area of concern is the promotion of e-cigarettes as a smoking-cessation product. “The safety of the chemicals in e-cigarettes hasn’t been established. Plus, the device is not regulated even though it delivers chemicals into the blood stream quite effectively,” she adds. “There just isn’t enough data right now to support its safety or efficacy as a smoking cessation device, yet it is being portrayed in the media as one.”

In addition, there are alarming similarities between the advertising and marketing efforts for e-cigarettes and those that were once used for tobacco products. “E-cigarettes are being marketed to children. They are targeting young folks with candy flavors and attractive packaging,” Ries says. “A number of e-cigarette companies are owned by tobacco companies, so we are concerned about a similar strategy being used for e-cigarettes.”

The Duluth City Council approved an ordinance in September that treats e-cigarettes like tobacco products in terms of where



Laurel Ries, M.D.,  
MMA public health committee chair

you can and can’t use them. Ries believes this type of forethought needs to continue at the state level: “We don’t know for sure whether e-cigarettes are safe or dangerous.”

### Continuing our progress

The Legislature will continue to play a big role in public health. “The MMA is really well-positioned to work with the Legislature and partner with organizations on public health,” Ries says. “If physicians have an interest in promoting public health topics, they should know the MMA can advocate on their behalf and their patients’ behalf to help promote change.”

Ries acknowledges that every public health concern is fraught with complexity and controversy. But, she says, if you can show people the power of the greater good, you can mitigate any backlash. “When Minnesota went smoke-free in public places, there was so much backlash, people were frustrated and threatened to go to bars in Wisconsin. A few years later, you don’t hear any more of that,” she says. “When you make a public health change that is new and unfamiliar, it takes getting used to. But it seems in general, if the evidence is solid behind what you are doing, it is an effective mechanism for change.”



Everything about  
medicine in Minnesota

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MINNESOTA  
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## News briefs

### Save the date: First Policy Council forum set

The MMA will hold its first Policy Council forum on Saturday, April 26, from 9 a.m. to 1 p.m. The topic and location for the forum, which will be open to all Minnesota physicians, are yet to be determined. Look to upcoming editions of *MMA News Now* for details.

The House of Delegates voted to form a Policy Council at the 2013 MMA Annual Meeting and create a simplified process for obtaining broad member input on critical health policy issues facing Minnesota physicians.

For more information on the make-up of the 40-member council, visit [www.mnmed.org/PolicyCouncil](http://www.mnmed.org/PolicyCouncil).



### MN ranks third in health poll

Minnesota is considered the third healthiest state in the nation, according to America's Health Rankings.

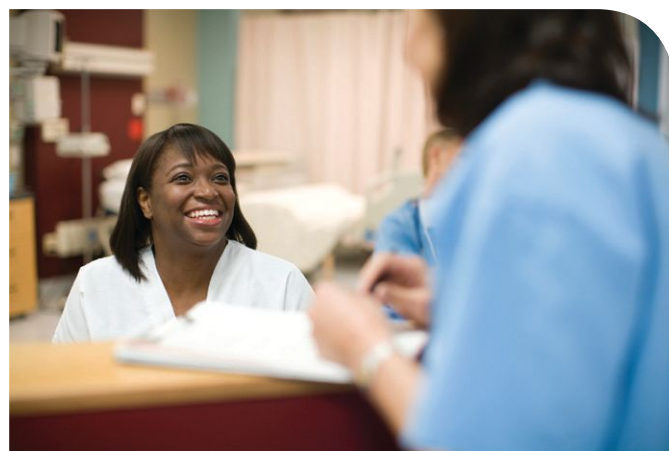
For the second year in a row, Hawaii ranked first, Vermont second and Minnesota third. Minnesota has landed in the top spot seven times in the rankings' 24-year history.

America's Health Rankings looks at four determinants of health: everyday patient behaviors; the community and environment; public and health policy; and clinical care. It also considers factors such as smoking, obesity, physical inactivity, binge drink-

ing, high school graduation rates, percentage of children in poverty, access to medical care, and incidence of preventable disease.

Minnesota scored above the national norm in all categories except for those relating to pertussis, binge drinking, public health funding, and immunization rates for adolescents and children.

The report is based on data from the U.S. departments of Health and Human Services, Commerce, Education, Justice and Labor; the U.S. Environmental Protection Agency; the U.S. Census Bureau; the American Medical Association; the American Dental Association; the Dartmouth Atlas Project; and the Trust for America's Health.



### Physicians and APRNs meet to discuss practice scope

Last December, representatives from the MMA met with members of a coalition that wants to expand nurses' scope of practice in Minnesota to discuss an issue that will likely see legislation during the session that begins February 25.

Discussion focused on the need for continued collaboration, potential changes to the required written prescribing agreement, growing concern about the overuse of opioids and the qualifications needed to administer interventional pain medicine.

"There continues to be some areas where compromise can be reached and other areas where there are strong differences," says Dave Renner, the MMA's director of state and legislative affairs. "We'll continue to focus on what is best for optimal patient care and the data that clearly show that collaboration and a team approach to care are the best."

The Advanced Practice Registered Nurses (APRN) coalition continues to push for complete independent practice for APRNs with a broad scope of practice. Coalition representatives acknowledged at the meeting that they may need to compromise to get a bill that would change APRNs' scope of practice passed in Minnesota. How much both sides are willing to move will determine whether such a bill moves forward this session.

Physicians at the meeting represented family medicine, emergency medicine, anesthesiology, psychiatry and interventional pain medicine. Nurses in attendance represented certified nurse practitioners, certified registered nurse anesthetists, certified nurse midwives and clinical nurse specialists.



## Congress inches closer to SGR repeal

Before leaving Washington in December, the Senate and House of Representatives passed a three-month Medicare physician payment bridge that replaces the 24 percent cut to payments scheduled for January 1. The bridge not only stopped the cut but also included a 0.5 percent payment update. President Obama signed the legislation into law on December 24.

The bridge isn't a repeal of the Medicare sustainable growth rate (SGR) formula, but it's a move in that direction.

"We are encouraged that Congress is finally poised to do away with SGR," says Dave Renner, the MMA's director of state and federal legislation. "We had hoped they'd get it done by the end of this year but we'll be satisfied if it happened in the first quarter of 2014."



## Minnesota one of top two states for quality transparency

Minnesota and Washington are the only states in the nation to receive an "A" for providing patients with reports on physician quality. The grade is based on a study conducted by the Health Care

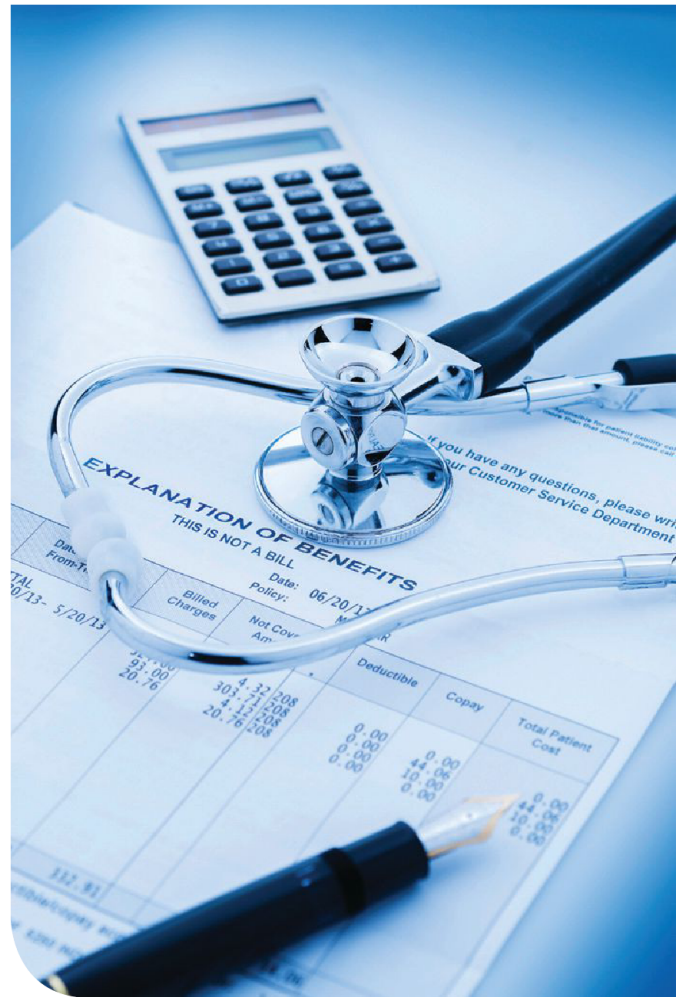
Incentives Improvement Institute, a nonprofit that designs programs aimed at boosting health care quality and affordability.

The report based its grades on the percentage of doctors rated in each state, whether those ratings included information about patient outcomes and consumer experiences, and how easy it was to find ratings through an online search.

California received a "C," and Maine, Massachusetts, Missouri, Ohio, Oregon, Pennsylvania and Wisconsin received "Ds." The remaining states received "Fs."

"It's nice to see Minnesota get an A, but it's concerning to see so many states do so poorly in this study," says Barbara Daiker, the MMA's quality manager.

The report's co-author, Francois de Brantes, said he was shocked because he thought information on the quality of physicians was far more available. "It's a very mixed bag," he told *Kaiser Health News*.



## Growth rate on Minnesota health care costs slows

Health care costs increased by only 2 percent during 2011, which, combined with the growth rate for the previous year, results in the lowest two-year growth since the Minnesota Department of Health (MDH) began measuring spending in the mid-1990s.

The report, which was prepared by MDH's Health Economics Program, compares projected spending and estimated actual spending, of which the calculated difference is defined as the savings associated with the implementation of Minnesota's 2008 health reform law. The analysis suggests that Minnesota is spending less per person than the national average.

The report also indicated that without addressing the drivers of health care spending or implementing reforms to curb spending growth, Minnesota's health care spending is expected to increase by more than double over the next decade. However, for 2011, actual spending fell short of projected levels by 5.4 percent.

## LSMS hands out annual awards

The Lake Superior Medical Society (LSMS) handed out its annual awards for "Physician of the Year" and several other top honors in December.

**David Sproat**, M.D., was named Physician of the Year for "consistently demonstrating qualities recognized as defining

## SAVE THE DATES

### Medical Marijuana Policy Forum

March 4

Eagan Community Center

### 2014 Annual Meeting

September 19 and 20

Madden's on the Lake in Brainerd

Go to [mnmed.org](http://mnmed.org) for details

excellence in medical care delivery.” During the past 10 years, Sproat’s patients at Duluth Internal Medicine Associates have sent in numerous nominations commending his exceptional work.

**Linda Van Etta, M.D.**, of St. Luke’s Infectious Disease Associates, received the Thomas A. Stolee Exceptional Dedication to the Practice of Medicine Award, which is given to a member physician who has demonstrated a lifetime of exceptional dedication to the practice of medicine.

**Nicholas Van Deelen, M.D.**, received the John B. Sanford Community Service Award, which is given to a member physician who has demonstrated exemplary service to the community through extensive volunteer activities outside the field of medicine.

**Paul Sanford, M.D.**, of St. Luke’s Internal Medicine Associates, received the President’s Award, which is given in recognition of personal, professional and community contributions to our profession.

**Theresa Smith, M.D.**, of Essentia Health, was awarded the Elizabeth C. Bagley Merit Award, which is given in recognition of commitment to the medical profession and the LSMS.

**Maria Barrell, M.D.**, a recent graduate from the Duluth Family Practice Residency Program, was awarded the Educator Award, which is given in recognition of excellence in teaching and education.

**Jay Knuths, M.D.**, of St. Luke’s Internal Medicine Associates, was awarded the 2013 LSMS President’s Gavel Plaque, in appreciation of outstanding leadership and commitment to the LSMS.



### Member named top financial adviser

MMA member **Joel Greenwald, M.D., C.F.P.**, of Greenwald Wealth Management, is one of three Minnesota financial advisers to be named Best Financial Adviser for Doctors by *Medical Economics* magazine. St. Louis Park-based Greenwald Wealth Management focuses exclusively on financial planning for physicians and dentists.

### New Young Physicians Section leaders named

The MMA’s Young Physicians Section leaders for 2014 are:

**Dionne Hart, M.D.**, a psychiatrist at Federal Medical Center in Rochester, chair; **Meltiady Issa, M.D.**, who practices internal medicine at the Mayo Clinic, vice chair; **Neel Shah, M.D.**, an internal medicine physician at the Mayo Clinic, YPS representative to the MMA’s board of trustees; and **Monjur Alam, M.D.**, a family physician at Sanford East Grand Forks, member-at-large.



Cindy Firkins Smith



Terry Ruane



Kathleen Baumbach



Mandy Rubenstein



Juliana Milhofer

## MMA in action

MMA President **Cindy Firkins Smith, M.D.**; **Terry Ruane**, MMA director of membership, marketing and communications; **Kathleen Baumbach**, an MMA manager of physician outreach; and **Dennis Kelly**, MMA Foundation CEO, attended the Zumbro Valley Medical Society annual meeting in January.

Smith also attended the Minnesota Psychiatry Society board of trustees meeting. **Mandy Rubenstein**, an MMA manager of physician outreach, and **Juliana Milhofer**, an MMA policy analyst, met with members at Sanford East Grand Forks to discuss the primary care physician workforce shortage. Rubenstein also represented the MMA at an awards ceremony honoring **Robert Bösl, M.D.**, as “Country Doctor of the Year” in Starbuck. In mid-January, **Jacob Prunuske, M.D.**, of Lake Superior Community Health Center in Duluth, Milhofer and Baumbach, discussed the primary care physician workforce shortage with physicians at Regina Medical Center in Hastings.



**Save the date!**

# Join us for Day at the Capitol

**MARCH 13, 2014**

**Here's a great opportunity to influence health care legislation in St. Paul. Legislators want to hear from physicians!**

We will meet with key legislators and discuss the following issues:

- Protecting patient safety by encouraging physician-led team-based care
- Modifying the Prescription Monitoring Program to ensure physicians are alerted when patients are potentially "doctor shopping" for prescription opioids
- Regulating the use of e-cigarettes
- And more issues that directly affect physicians' practices

Individual meetings will be scheduled with your representative and/or senator.

**Day at the Capitol**  
**Thursday, March 13, 2014**  
**12:30 pm**  
**Minnesota State Capitol**  
**St. Paul**

FREE FOR MEMBERS; \$49 FOR NONMEMBERS



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## VIEWPOINT

## Coordinating care

**M**innesota is one of the best states for health care in the country. However, we are lax in one area in particular—coordinating care, in particular the transfer of data from one physician/clinic/hospital to another. And the reason for this is a Minnesota law.

Currently, we are one of only two states with health privacy laws that are not aligned with the Health Insurance Portability and Accountability Act (HIPAA). Passed by Congress in 1996, HIPAA was designed to protect patient privacy while allowing the limited sharing of health data by physicians and other providers to ensure the efficient and safe provision of care. HIPAA also supports the levying of fines and even criminal charges if private health information is not appropriately protected.

Clearly, physicians must obtain patient consent prior to providing treatment. This is a good thing because it gives patients the right to control their health decisions. However, the Minnesota law that prohibits the sharing of patient data for accepted health operations without patient consent is making it very difficult to provide the best, most efficient care for that patient and to do so in a coordinated fashion.

Here's an example of how the current law is causing problems: Let's say a primary care physician refers a patient for psychiatric care and the psychiatrist prescribes medication. If the patient does not share that information with his or her primary care doctor, the physician won't know if there any potential harmful drug interactions.

If Minnesota made clinically relevant health information easier to share with a patient's other physicians and providers, this would not happen. We can do a much better job sharing data while safeguarding a patient's privacy. Patients already expect that we do this. They believe that the care they receive from one physician will be shared with their primary physician. Unfortunately, that's not the case.

Lawmakers need to change Minnesota law so it aligns with federal HIPAA requirements. This will improve the ability of Minnesota physicians to provide coordinated patient care and ultimately achieve the Triple Aim.

The MMA is working closely with the Minnesota Hospital Association and the Minnesota Council of Health Plans to make this happen. If we are going to effectively adopt innovative health care delivery models such as medical homes, accountable care organizations and total cost of care structures, we need to be able to share data more efficiently while carefully guarding patient privacy.

You might expect this confusion and duplicative efforts in other parts of the country. But this is Minnesota, where we are continually the vanguard for health care reform, quality and patient safety. It's time we fix the data privacy law so that we can coordinate care optimally.



Dave Thorson, M.D.  
MMA Board Chair

PHOTO BY STEVE WEWERKA

We can do a much better job sharing data while safeguarding a patient's privacy.

# Life and death in a hurricane

A physician-journalist's account of what happened at a New Orleans hospital during the days following Katrina is as riveting as a war story.

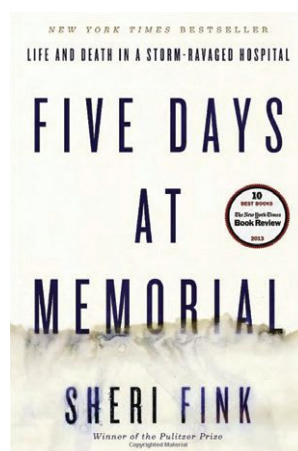
REVIEW BY CHARLES R. MEYER, M.D.

I've often envisioned wartime medical care as a variation on the opening scene of *Saving Private Ryan*, chaos incarnate with blood and death occurring every minute and the participants called on to constantly improvise. At times, my experience on the burn unit at Chicago's Cook County Hospital seemed like that. But the closest description to battlefield conditions in a domestic setting I've read are the gripping, exhausting depictions in physician-journalist Sheri Fink's *Five Days at Memorial: Life and Death in a Storm-Ravaged Hospital* about New Orleans Memorial Medical Center in the hours following Hurricane Katrina. Operating without electricity and basic sanitation, Memorial doctors and nurses faced seemingly insurmountable obstacles to caring for their patients even as wrenching ethical decisions about end of life were compressed into a few days.

At the end of August 2005, as Hurricane Katrina bore down on New Orleans and the warnings from meteorologists and community leaders became increasingly dire, the medical community reached deep into their disaster-preparation folder, hoping that this hurricane would be no different from all the others they had weathered. Indeed, the initial stages of the storm indicated it wouldn't be much different than previous ones; the blown-out windows and loss of power were all manageable with backup generators and stockpiled supplies. But then the failure of the levees led to the inundation of the area around Memorial, and the hospital became a veri-

table island cut off from supplies and rescue. "The hospital's preparedness plan for hurricanes did not anticipate flooding," Fink wrote. "The flooding plan did not anticipate the need to evacuate. The evacuation plan did not anticipate a potential loss of power or communications. Most critically, the hurricane plan relied on the assumption that the hospital's generators would keep working for a minimum of 72 hours, although they were never tested to run that long."

The staff at Memorial went into triage mode and started to prioritize patients for an evacuation that became a logistical nightmare. The primary exit route from the hospital was by helicopter. But because of the flooding, an infrequently used helipad on the roof of a parking ramp was accessible only through a hole in the wall of a machine room. Once it was verified that the helipad would support helicopters, patients were carried down five flights of stairs to the machine room, passed through the hole along with their IVs and ventilators, and then carried up three flights of metal stairs to the helipad. After neonates were evacuated, choosing who would leave next got tough. Critical patients became more critical and the medical staff had to weigh their probable survival against the difficulty of getting them out of the hospital.



Crown Publishers, New York, 2013

The relief efforts were complicated by confusion over who was in charge. Memorial, formerly Baptist Hospital, had acquired its name when it was bought by Tenet Healthcare Corporation, a multi-hospital giant based in Dallas. One floor was leased by Lifecare Corporation to house long-term critically ill patients who required intensive treatments such as ventilators. During the five days following Katrina, the Memorial staff struggled

with sometimes contradictory orders from different "bosses."

In the final hours before Memorial was completely evacuated, many of the Lifecare patients died. One doctor and two nurses were accused of euthanizing a number of patients although the charges against the nurses were dropped in exchange for their testimony. The lead-up to the grand jury trial, in which the doctor was exonerated, forms the

second half of Fink's book.

*Five Days at Memorial* is not just a saga of "war" medicine practiced under wretched conditions. It is an analysis of the science and art of triage, the shortcomings of governmental disaster planning, and, most of all, the ethics of end-of-life care of patients *in extremis*. It does seem likely that the doctor at Memorial administered large doses of morphine and versed to moribund patients in the waning hours. Was she just keeping them "comfortable"? Was she disposing of them because they were inconvenient? Or was this an example of what happens commonly to terminal patients, where comfort measures truly hasten their end?

War, whether against opposing armies or hurricanes, challenges the limits of medical care and human caring. **MM**

Charles Meyer is editor in chief of *Minnesota Medicine*.

# Linking primary care and public health in Minnesota

Why it's critical to the health of our population

BY JANE KORN, M.D., M.P.H.

The current push for better care, better value and improved population health is providing an impetus to reshape the relationship between primary care and public health in our state. Clearly, achieving the Triple Aim will require a health care system that delivers high-quality, comprehensive primary care to all at a lower per capita cost. But in order to address the growing burden of chronic disease—one of the drivers of rising costs—health care organizations will need to coordinate their work with public health to better enable people to live healthy lives through community-based prevention. Neither the health care system nor the public health sector can do this alone.

A 2012 report issued by the Institute of Medicine (IOM) calls for the integration of primary care and public health, defining integration as “the linkage of programs and activities to promote the overall efficiency and effectiveness to achieve gains in population health.”<sup>1</sup> The IOM proposes a continuum of integration, starting with mutual awareness and cooperation and

moving to collaboration and full partnership. Federal agencies including the Centers for Disease Control and Prevention, Centers for Medicare and Medicaid Services, and Health Resources and Services Administration have begun to embrace this concept and are beginning to take a more coordinated approach to funding their respective programs. We have a National Prevention Strategy that aims to “move the focus on sickness and disease to one based on prevention and wellness.”<sup>2</sup>

In our state, the Minnesota Department of Health and local public health departments have been working with the primary care community to achieve that goal, leveraging opportunities to optimize the quality of clinical care and working to reform payment in a way that encourages integrated care to prevent and manage chronic disease.

## Clinics and communities

Minnesota's Statewide Health Improvement Program (SHIP) is one such example. Funded in 2008 by the state Legislature, SHIP is about creating opportunities for health in communities. SHIP activities

focus on active living, healthy eating and smoke-free environments, using strategies that complement the one-patient-at-a-time approach of the clinical setting or disease-management programs offered by health plans. Through SHIP, local public health departments are engaging schools, businesses, transportation agencies, city planners and the health care sector to implement policies, systems and environmental changes that will support improvements in population health. Over the past four years, the work done as a result of SHIP has strengthened ties between local public health departments and primary care. In many areas of the state, these efforts are redefining the relationship between local public health departments and primary care clinics in exciting ways. For example, in Fergus Falls, local public health and Lake Region Healthcare are working together to put prevention guidelines into practice by optimizing workflows for screening patients, counseling them, making referrals and providing follow-up.

Building on the foundation of SHIP, Minnesota's Community Transformation



Grant (CTG) Program, funded under the Affordable Care Act, expands on the collaborative work being done by clinics and public health. CTG adds an emphasis on reducing health disparities and preventing and managing chronic diseases such as heart disease, diabetes and hypertension. With the CTG funds, we are supporting evidence-based programs in the community such as the Diabetes Prevention Program and smoking-cessation programs that help people manage their risk for chronic disease. Through CTG, primary care practices are working with local public health departments to determine how best to streamline referrals to community services, how to use health information technology to facilitate follow-up, and how to integrate nontraditional providers such as community health workers or community paramedics into a more coordinated system of care. In the Duluth area, for example, local public health is providing resources to area clinics to train staff in motivational interviewing and in practice facilitation.

CTG also has supported Minnesota Community Measurement's development of a healthy lifestyle measure for primary care that includes BMI, smoking status and hypertension control. This measure will be piloted this spring with selected primary care clinics involved with CTG activities. We hope both the medical and public health sectors will find the data provided by this measure useful for assessing and improving population health.

### New payment models

On the payment side, Minnesota was one of six states selected in 2013 to receive a State Innovation Model (SIM) testing grant from the Center for Medicare and Medicaid Innovation. Jointly administered by the Minnesota Department of Human Services (DHS) and Department of Health (MDH), SIM funding will enable testing of new ways of delivering and paying for health care using an accountable health

framework based on total cost of care. SIM builds on Minnesota's experience with health care homes that promote coordinated, team-based, patient and family-centered care. It also makes a substantial investment in health information technology. Grants will be made available to providers in early 2014 to support secure health data exchange across care settings. Later this year, through a competitive grant process, SIM will fund up to 15 Accountable Communities for Health to test new ways of linking medical care, behavioral health care, long-term care, public health, social services and community-based prevention with a goal of developing financially sustainable models to address community health priorities.

### The importance of data

Data exchange, data reporting and data analytics have become increasingly important to both primary care and public health. Launched a decade ago, Minnesota's e-health initiative was created to accelerate the use of health information technology. As of August 2013, 87 percent of clinics, 96 percent of hospitals and 97 percent of local health departments were using electronic health record (EHR) systems and 92 percent of clinics were e-prescribing.<sup>3</sup> We need to continue working to ensure we maximize the potential of EHRs to support clinical decision-making and the exchange of clinical and public health information.

The State Quality Reporting and Management System (SQRMS), which tracks the quality of health services, is yielding data that benefit both the primary care and public health sectors. Among the data being collected are measures of health outcomes, preventive services and management of heart disease, diabetes, asthma and depression.<sup>4</sup> Several public health programs in Minnesota, including state programs for asthma, diabetes, heart disease and cancer, as well as the health care home initiative are using SQRMS data to

monitor progress in meeting statewide health-improvement goals around chronic disease prevention and control.

### Conclusion

The IOM proposed the following principles to encourage integration of primary care and public health: shared goals for population health, community engagement, aligned leadership, and collaborative use of data and analysis.<sup>1</sup> These principles are embedded in the work now being done in Minnesota. One could say that after decades of drifting apart, we now have the "perfect storm" for bringing public health and primary care into closer alignment to provide high-quality care for all, contain costs and improve the health of all Minnesotans. **MM**

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# The High Cost of Bath Salts

## *A Study of the Health Care Burden of Illicit Synthetic Drug Use in Duluth, Minnesota*

BY SARAH DUGAN, JON ROESLER, M.S., AMY WESTBROOK, M.P.H., ELISABETH BILDEN, M.D., DEBBIE ANDERSON, PHARM.D., NICK VAN DEELEN, M.D., SCOTT WOLFF, M.D., MARK KINDE, M.P.H., AND RUTH LYNFIELD, M.D.

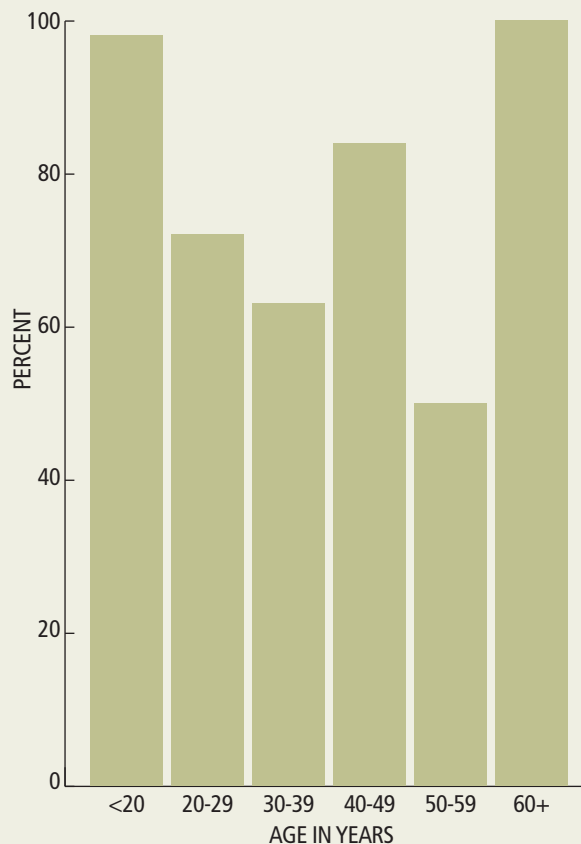
The Minnesota Department of Health conducted an exploratory epidemiologic investigation into the health care burden of illicit synthetic drug (ISD) use in Duluth, Minnesota. Staff reviewed medical records of 78 patients with suspected ISD use who were treated in emergency departments at two Duluth-area hospitals from January through September 2013. Most (67%) were unemployed, 75% arrived at the hospital by ambulance or police escort and 57% were admitted to the hospital. Use of ISDs has the potential to create a significant burden on the health care system and public services. Therefore, effective prevention and response strategies need to be developed.

During the past two years, news media have followed the story of a popular head shop in Duluth that was selling so-called “bath salts” and other products labeled “not for human consumption” that individuals were purchasing to become intoxicated.<sup>1,2</sup> The products contained illicit synthetic drugs (ISDs), a category that includes synthetic cathinones (bath salts)—chemicals that are related to amphetamines—and synthetic cannabinoids. The shop reportedly made more than \$6 million a year<sup>2</sup> selling such substances until a federal raid shut it down in the summer of 2013.<sup>3</sup> The raid was the culmination of two years of growing public awareness in Duluth about ISD use.

Starting in 2010, public safety officials and health care personnel in Duluth began noticing that the number of people using ISDs was rising, as were the number of cases of disruptive behavior and of health consequences related to ISD use. In one case, police found a man wielding a knife in a laundromat and having paranoid delusions. It took several officers to restrain him and take him to the hospital. In another, an individual was found hiding in bushes and exhibiting strange behavior.

FIGURE 1

### History of Polysubstance Use among Illicit Synthetic Drug Users Seen in Duluth Emergency Departments by Age Group (N=58)



Over the ensuing two years, peace officers and emergency department personnel increasingly found themselves dealing with issues associated with ISD use.

In July of 2013, the Minnesota Commissioner of Health authorized the Minnesota Department of Health to investigate the ISD problem. Although several previous studies have described the toxidrome associated with ISD use,<sup>4,7</sup> this investigation sought to estimate the effect of ISD use on health care in a single community during a set time period.

**Materials and Methods**

We used a case series design to study a convenience sample of patients with suspected ISD use who were treated in emergency departments at two Duluth-area hospitals from January through September 2013. Because specific diagnostic codes for ISD use were not available, we identified cases using poison center data or through physician recall. We then reviewed the medical records related to those cases. Health Department epidemiologists designed an abstraction form, built on previous work by the Michigan Department of Community Health, to study emergency department (ED) visits after ISD use.<sup>7</sup> We defined a case of ISD use as a patient who was evaluated in the ED and had ISD use or suspect use documented in the medical record. Arrival and discharge diagnosis codes, such as acute respiratory failure, acidosis and rhabdomyolysis, were abstracted from the medical record for 34 of the cases; history and type of mental illness were abstracted for 44 other cases. Ten charts were re-abstracted by a second reviewer to check for variance. A Cohen’s kappa variance test was used to measure the inter-rater reliability of the chart abstractors.

**Results**

Eighty-one cases of possible ISD use were identified, and researchers reviewed the medical records related to those cases. For 78 of the cases, ISD use or suspect use was documented in the medical record. Fifty-eight individuals (74%) self-reported having used an ISD. Of those, 38 (66%)

reported using cannabinoids, 15 (26%) cathinones, and five (9%) reported using both.

The median age of users was 34 years (age range: 12 to 73 years), and 54 (69%) were male. Fifty-eight patients (74%) from

all age groups had a history of polysubstance use (Figure 1). The unemployment rate in the sample population was 67%. Most of these patients were taken to the hospital. Thirty six (46%) arrived by police escort, 23 (29%) by ambulance (Figure 2).

FIGURE 2

**Mode of Arrival to Emergency Department (N=78)**

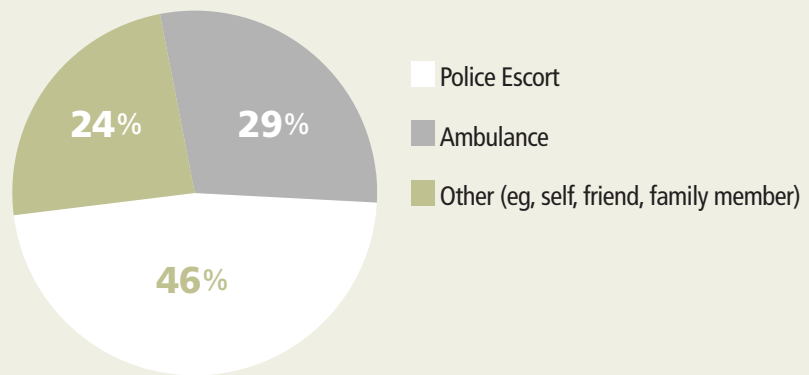
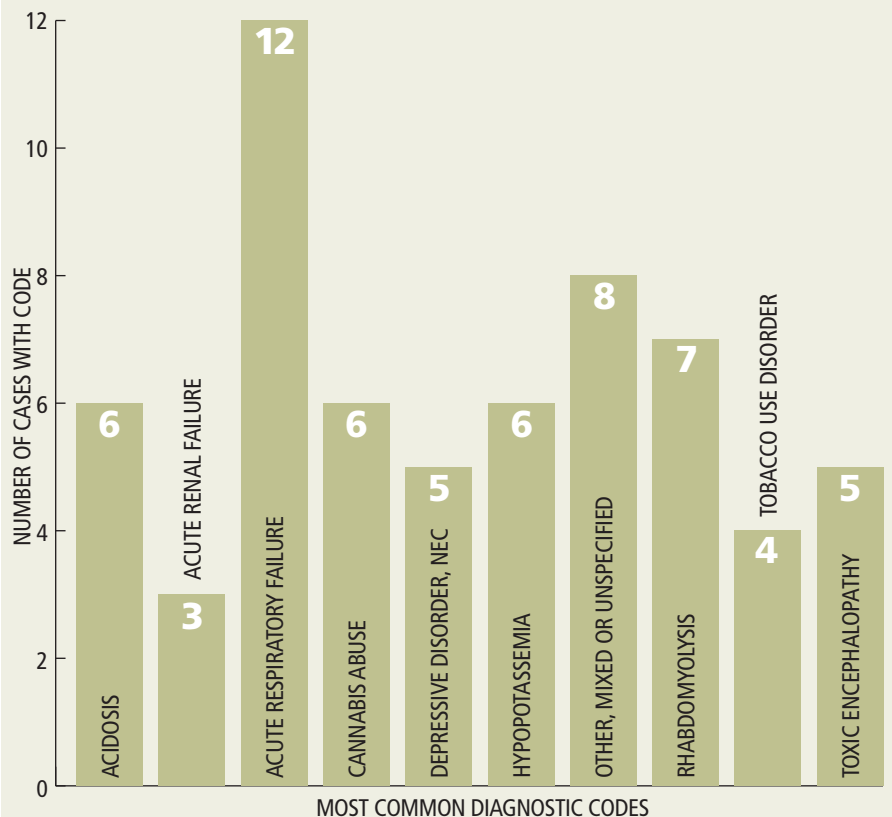


FIGURE 3

**Diagnostic Codes of 34 Patients with Illicit Synthetic Drug Use Seen in Duluth Emergency Departments**





The methods used for ISD administration included smoking the substance (37 cases or 47%), ingesting the substance (eight cases or 10%) or injecting the substance in (three cases or 4%). In 29 cases (37%), the route of administration was not reported.

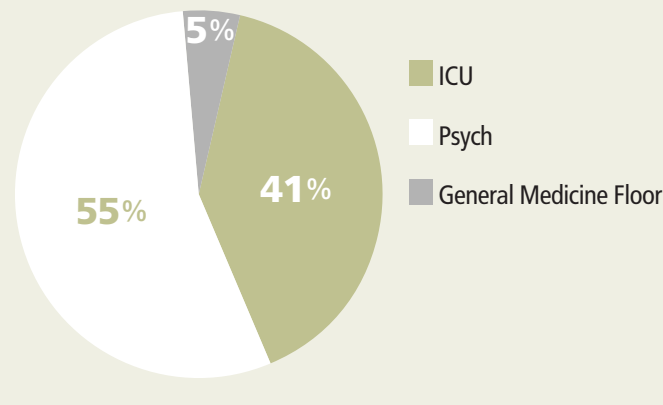
We found diagnosis codes were distributed disparately among the 34 cases analyzed. They included acute respiratory failure (19%), rhabdomyolysis (11%), cannabis abuse (10%) and renal failure (5%) (Figure 3). The most common signs/symptoms experienced by ISD users were agitation (13%), violent behavior (12%), anger/aggression (7%), bizarre behavior (6%), confusion (6%), hallucinations (6%) and anxiety (5%). Twenty-six (59%) of the 44 ISD patients whose records were reviewed for a history of a mental health disorder had documentation of a mental illness. The most common diagnoses were anxiety (32%), depression (30%), bipolar disorder (14%) and chemical dependency (14%). Six patients were noted to be suicidal after using ISDs. All of them had a history of mental illness. Thirty-four (44%) of the ISD users were treated in the emergency department only, and 44 (56%) were admitted to the hospital. Of the 44 ISD patients admitted to the hospital, 18 (41%) were admitted to the intensive care unit, 24 (55%) to the psychiatric unit, and two (5%) to the general medicine unit (Figure 4); the median length of stay was four days (range one to 39 days). The coefficient for the Cohen's kappa variance test was 0.63, which is within the range of substantial agreement, showing that the inter-rater reliability between case abstractors was within an acceptable range.

## Discussion

Our study documented many findings similar to those reported in other studies of synthetic drug users: that they have a history of polysubstance use and mental illness and that they are predominantly male. We found the median age of ISD patients in our study was 34 years, which is slightly older than the average age in other studies.<sup>4-8</sup>

FIGURE 4

### Admissions among 44 Patients with Illicit Synthetic Drug Use Taken to Duluth Area Hospitals (N=44)



The most common signs/symptoms experienced by ISD users in our study were agitation, violent/bizarre behavior, anxiety, anger/aggression, hallucinations and confusion. Similar findings have been reported in other studies.<sup>6-8</sup> More than half of the ISD users whose cases we studied had a history of mental illness, which is slightly higher than what a similar study in Michigan found.<sup>7</sup> Additionally, all of the ISD users who were noted as suicidal had a history of mental illness. Most of the ISD users were admitted to the hospital and some were admitted to the ICU, a finding also observed in other studies of ISD patients.<sup>7,8</sup> Notably, over a nine-month period, there were at least 78 ISD cases that came to the emergency department for care in a community with a population of 86,000.<sup>9</sup>

One of the challenges in conducting this study was that there is no single diagnostic code for ISD use. Although this study made an attempt to identify a code combination that would indicate ISD use, we found the codes were too varied among cases to do so. St. Luke's hospital in Duluth has an internal system for identifying ISD use in patients. This was helpful and might be considered a prototype for coding ISD cases for surveillance purposes. Staff members of St. Luke's hospital have proposed adding unique ISD use codes to the ICD-10 coding system. The Minnesota Department of Health is collaborating with the Hennepin Regional Poison Center

and the Minnesota Hospital Association to establish a system for identifying cases involving ISD use in emergency departments. Such a system would aid future researchers as they seek to determine the health care burden of ISD use statewide. Health department officials have asked emergency physicians across the state to report suspected ISD use to the Hennepin Regional Poison Center for the period from November 2013 through December 2015 (Figure 5).

In addition to treating patients who are known ISD users, physicians have a role to play in preventing use of these substances. About three-quarters of ISD users in this study had a history of polysubstance use, pointing out that ISD use is an indicator of other substance use. Thus, strategies to address the underlying problem of substance use could also prevent ISD use. Other factors associated with illicit substance use among adolescents include lack of parental supervision, poverty and availability of drugs.<sup>10</sup> Additionally, the Centers for Disease Control and Prevention has found that adverse childhood experiences such as abuse and neglect are linked to an increased risk of illicit drug use.<sup>11</sup> By asking patients about their living situation

and their experiences of abuse or neglect, physicians can help identify youths who may be at risk for abusing drugs, including ISDs.

Physicians also can assist in surveillance efforts. When they suspect ISD use, they can ask patients about it directly. In addition, they should report all ISD cases or suspected cases to the Hennepin Regional Poison Center. This includes cases where ISD use is the primary health concern as well as cases where it is disclosed during the medical history. Physicians may call the center themselves (800-222-1222) or delegate a staff member to make the call.

### Conclusion

Physicians, health departments and poison control centers each have an important role to play in addressing the issue of ISD use. Physicians can do primary prevention of substance abuse and report ISD cases to poison centers, and poison centers can work with local health departments to describe ISD use in their community, leading to informed prevention strategies. Collaboration among physicians, health departments and poison centers is vital if we are to prevent ISD use from becoming a heavy burden in our communities. **MM**

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FIGURE 5

### Informational Poster Distributed to Clinics by the Minnesota Department of Health

The Minnesota Department of Health is investigating exposures to synthetic drugs. We ask you to ask patients:

- Are you now or have you recently used synthetic drugs (such as synthetic marijuana, bath salts, or other substances)?
- What have you used (ask for brand name)?
- How did you use it; and where did you get it?

The clinical toxidrome initially seen for these agents is very similar:

- agitation
- tachycardia
- hallucinations
- hypertension
- bizarre behavior

**Exposure to Synthetics?**  
Please call Poison Center  
to report every suspect case in Minnesota (November 2013-December 31, 2015): **1-800-222-1222**

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# Making the C.A.S.E. for the Human Papillomavirus Vaccine

## *How to Talk to Parents and Adolescents*

BY ROBERT M. JACOBSON, M.D., FAAP

Human papillomavirus (HPV) vaccination rates have been stagnant or falling for females, and vaccination efforts are off to a poor start for males. Despite recommendations by the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices and other authorities that all adolescents receive the vaccine at 11 to 12 years of age, the latest data indicate no more than 32% of females ages 13 to 17 years have completed all three doses; the rate for males is less than 8%. Most parents are unfamiliar with HPV and are unaware that their children may one day become infected. In addition, they may not know that the vaccine is recommended. Others may question its safety and whether their child needs it; or they may think their child is too young to be vaccinated. Whether adolescents get the vaccine depends largely on their clinician: A clinician who directs a parent to have their child vaccinated will be more successful in ensuring that child is vaccinated than those who merely tell parents the vaccine is available. The Minnesota Chapter of the American Academy of Pediatrics teaches clinicians to address vaccine hesitancy among parents using the C.A.S.E. approach. This approach is not just for parents; it also can be used to address adolescents' concerns in a persuasive manner.

The Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices (ACIP) and the American Academy of Pediatrics have recommended routine vaccination against human papillomavirus or HPV for all adolescents at 11 to 12 years of age.<sup>1-3</sup> Of all the vaccines we routinely recommend, this one is faring the worst. Since the ACIP began recommending universal HPV vaccination of females in 2006, the vaccination rates in the United States among this population are still nowhere near what one might have expected.<sup>4</sup> Completion of the three-dose series for females 13 to 17 years of age in 2008 was 17.9%.<sup>5</sup> By 2010, it had

improved to 32.0%.<sup>6</sup> However, the rates of dose-specific vaccination did not improve from 2011 to 2012, and the series completion rate actually fell.<sup>7</sup>

Six years later, in 2011, the ACIP made similar recommendations for males.<sup>3</sup> In 2012, no more than 8% of males 13 to 17 years of age had completed the three-dose series and only 20.8% had received one dose.<sup>7</sup> That latter rate is lower than it was for females of the same age in 2007 (25.1%), one year after the vaccine was first recommended.<sup>8</sup>

The HPV vaccination rates are quite different than those for two other vaccines for teens (meningococcal and Tdap) that were also launched in 2005-2006. In 2012, the rate for just one dose of HPV in females 13 to 17 years of age was 53.8%

compared with 84.6% for Tdap and 74% for meningococcal vaccine.<sup>7</sup>

Recent studies indicate parents' concerns may lie at the heart of our failure to vaccinate adolescents against HPV.<sup>4,9</sup> Adolescents' concerns probably matter as well, and we are studying this. Clinicians must find a way to address both of their concerns efficiently and effectively.

### HPV and the Vaccine

Most parents and adolescents are unfamiliar with HPV and the infections various strains cause. Some HPV strains cause common warts and others genital warts. The strains that most concern us, however, are silent and cause no symptoms. When



the infections persist, they can cause cellular changes that lead to precancerous and then cancerous conditions.

Experts hold that in the United States, 6.2 million new HPV infections occur each year,<sup>10</sup> and by age 50, nearly 80% of all sexually active adults have been infected with the virus.<sup>11</sup> Epidemiologically, adolescents appear to be at the highest risk for HPV infections. Although surveys indicate only 6.2% of adolescents have had a sexual experience before age 13, 43.8% of ninth grade boys and girls report having had a sexual experience.<sup>12</sup> HPV infections result in approximately 26,000 new cancers in this country each year; about 12,000 of those are cervical cancers. The others involve the vagina, vulva, penis and anus as well as the head and neck.

HPV is a capsid-containing, double-stranded DNA virus with two genes that make early proteins E6 and E7; these appear necessary for conversions of host cells to cancer.

The HPV vaccines consist of the proteins that make up the capsids of the virus with none of the proteins associated with host cellular changes and the nucleic acids.<sup>13,14</sup> The FDA licensed the first HPV vaccine in this country in 2005.<sup>15</sup> That vaccine, Gardasil, is manufactured by Merck and Co. and consists of four strains. Cervarix, manufactured by GlaxoSmithKline, was the second vaccine to be licensed. It received FDA approval in 2009 and consists of two strains.<sup>1</sup> The ACIP first recommended Gardasil for females in 2006 with permissive use of the vaccine for males.<sup>15</sup> With the licensure of Cervarix, the ACIP included it in its recommendation for females but not for males, as it offered no direct protection for them against the genital wart stains of 6 and 11.<sup>1</sup> When the ACIP then made its universal recommendation for males in 2011, it only included Gardasil.<sup>16</sup>

Both vaccines come as a sterile liquid in a single-dose vial or syringe and are given intramuscularly.<sup>13,14</sup> No preservatives such as thimerosal are used; therefore, no multi-dose vials exist. Both brands include adjuvanting with aluminum compounds. Vaccination with either brand involves

FIGURE 1

### Addressing the Adolescent before Applying C.A.S.E.

**Clinician:** (Looking at the teen) Hi, Sean, I'm Dr. Jacobson, one of your doctor's colleagues. I don't think we've met before. Who did you bring with you today?

**Teen:** That's my mom.

**Clinician:** Hi. Would you help me out and switch places so that Sean and I can talk face to face?

**Clinician:** (Looking at the patient and then the parent after the patient and parent rearrange themselves) I would like to begin by asking you what concerns you have today and what you would like to get out of today's visit.

**Teen:** My allergies, I guess.

**Clinician:** (Looking at parent) Anything else?

**Parent:** No, just that for today.

**Clinician:** Thank you, I'll get a little more information, and then I would like to visit with you (indicating the teen with eye contact) alone. After that, we can regroup and I'll do a brief exam of your head, neck and chest, and discuss my recommendations for management. Following that, we can come up with a plan for your allergies. At that time, I'll recommend you get the flu and the HPV vaccines. Sean, what do you think about this plan for our visit today?

three doses given over six months, with one to two months between the first and second doses and six months between the first and third doses (with at least 24 weeks between the first and third dose and 12 weeks between the second and third dose).

Prelicensure studies show the vaccine is effective in females for preventing cervical cancer, cervical intraepithelial neoplasia and genital warts.<sup>13,14</sup> They also demonstrate that it is safe. Post-licensure studies found associations only with transient syncope, leading to recommendations to inform patients of the potential for syncope and the symptoms associated with it, and to observe the patient for 15 minutes following vaccination.<sup>17,18</sup> The vaccine is contraindicated in patients who have had serious allergic reactions to previous doses or to the vaccine components.<sup>3</sup> It is also not recommended for females known to be pregnant or for patients with moderate to severe illness. Both Gardasil and Cervarix are known to cause transient, and primarily mild, injection-site erythema, swelling, induration and tenderness.

### Involving Both Parents and Adolescents in Discussions

A recent study that made headlines in clinical journals and newsletters demon-

strated that clinicians who directed their patients to undergo vaccination enjoyed higher rates of uptake than those who simply indicated that the vaccine was available.<sup>19</sup> The authors concluded that parents seek direction and advice and not simply information and opportunity. Other studies have shown repeatedly that parents, even those who question vaccination's efficacy, safety and need, appeal to their clinicians for advice and information concerning vaccination.<sup>20,21</sup> The National Immunization Survey-Teen (NIS-Teen) shows that adolescents whose parents recall physician recommendations for HPV have higher rates of vaccination than those who do not; however, the rates for those whose parents recall the recommendations are only around 40%.<sup>4</sup>

Although discussing the issue with parents is important, clinicians also need to recognize the adolescent's role in the decision about whether to be vaccinated. By first focusing on the teen, they may be able to achieve greater success. Here's the approach I take with teens 13 years and older.

I start by greeting the adolescent (and then the parent) and acknowledging that the visit is primarily for his or her benefit even if the parent was the one who made the appointment. If I do not already know

the family, I ask the patient to introduce me to the parent. After the introductions, I ask the patient about his or her chief complaint and what he or she hopes to get out of the visit. Often, the adolescent tells me the visit was driven by the parent's concerns. It is important to know this. (See Figure 1 for a sample dialogue.)

Once the teen and his or her parent have articulated what they both would like to get out of the visit, I let them know we will take a history and do a physical exam, describe any testing that's likely to be needed and mention any vaccines that are due. It's important to bring up the issue of vaccines right away because I need to know from the outset if there are hesitations on the part of the adolescent or the parent. If there are, I make it clear that I would like to address those hesitations.

At that time, I let the patient and parent know if I want to meet with the adolescent alone for part of the visit. I usually do this for patients starting at age 13. That way, I

can address the adolescent's vaccine hesitations before dealing with any the parent may have.

### Using the C.A.S.E. Approach

I recommend using the C.A.S.E. approach to have successful discussions with both parents and adolescents. Created by Alison Singer, founder and president of the Autism Science Foundation and the mother of an autistic child, it is a way of talking to vaccine-hesitant parents. C.A.S.E. stands for Corroborate, About Me, Science and Explain/Advise.<sup>22</sup> It keeps the discussion focused and brief, which is important, given the time allotted for the visit and the fact that adolescents don't want these visits to take longer than they have to.

As a clinician, you first Corroborate the parent's or teen's concern, working to understand their questions and find common ground at least in the underlying values driving their concerns. Next, you talk About me—tell what you have done

to learn about the concern and the facts relating to it. Then you summarize the Science as it relates to the concern. Finally, you Explain your advice by framing it in terms that relate to the parent's or adolescent's concern, their underlying shared values and your own knowledge. This way, you work to persuade rather than merely inform, combining pathos, ethos, and logos—elements of rhetoric taught by Aristotle. (See Figure 2 for an example of using C.A.S.E. to address an adolescent's concern.)

Using this approach, you first try to find common understanding and common ground. "Corroborate" the parent's or adolescent's concern by determining specifically what it is and then find some basis for it. This may seem like foreign territory, but clinicians actually practice this all the time when they say:

"Tell me exactly what is bothering you."

"I can see why you might worry about that; a number of my patients' parents have raised that same concern."

"I actually thought the same thing when I first heard of this recommendation."

Such phrases can help you find common ground with your patients or their parents. You can then build on this by saying things such as:

"Ultimately, you and I both want the same thing: that your adolescent doesn't suffer unnecessarily pain or discomfort."

"You and I both want your teen protected against things that might harm her."

"Neither of us wants to give this vaccine too early; we want to time it just right."

Aristotle refers to this as pathos. It is the compassionate connection-building that provides the basis for advising and ultimately persuading.

Many clinicians, especially those who do primary care, may struggle with the "about me" part. The idea is for you to acknowledge what you have done to build your knowledge base. You might say things like:

"As a result of my own questions, I've read the studies and attended lectures on the topic."

"I've contacted the experts and asked them those questions myself."

FIGURE 2

### Using C.A.S.E. with an Adolescent

**Teen:** I don't want any vaccines today.

**Parent:** I promised him there'd be no shots.

**Clinician:** (Turning to teen to Corroborate) May I ask why you don't want any vaccines?

**Teen:** They hurt!

**Clinician:** (Pauses and looks at the teen) I agree that some do. And I understand why you'd like to avoid any unnecessary pain. I wish I had vaccines that didn't hurt. (Talking About Me) As a pediatrician, I have read a lot about vaccines, including the problem of injection pain. And I know about the pain firsthand because I get shots every year as a result of my job.

**Teen:** So you know what I'm talking about.

**Clinician:** (Moving on with Science) I also know about an option you might want to consider. The flu vaccine comes as either a shot or a nose spray. If you go with the nose spray, you would only get one injection today with the HPV.

**Teen:** Up my nose? Really?

**Clinician:** Or you could go with the injection. If I were your age, I'd choose the nose spray. Studies I've read indicate that it often works better with teens than the shot.

**Teen:** I'll do the nose spray. Can I do it for the other one, too?

**Clinician:** (Explain/Advise) I don't have any choice for the HPV vaccine, but I do know the HPV vaccine prevents a lot more pain and harm than it causes. I've read a great deal and attended a number of lectures regarding the HPV vaccine. I really recommend that you get them today. In my experience, my patients your age handle the pain of that shot easily. It goes away quickly. If I were in your shoes, I'd get the shot.

By doing this, you reassert your professional standing as an informed advisor, someone to be trusted. Aristotle refers to this as ethos management.

Physicians generally feel comfortable addressing the science. However, we often make our communications science lectures and then complain that our patients and their parents don't understand what we're saying. Clinicians need to summarize the science rather than wax eloquently about it. For example, you might say things such as:

"Studies now involving hundreds of thousands of teens demonstrate the vaccine's safety with no development of injury or disease."

"Scientific investigations show that to successfully immunize we need the three doses completed early in adolescence to achieve the highest rates of immunity."

"Surveys tell us just how common and insidious HPV infection is; most will never know they were infected or when they clear it."

"So far, studies going back long before the vaccine was licensed indicate no reason to believe the vaccine will wear off."

Better yet, share with the parent and adolescent a story to which they both can relate. For example, I tell my vaccine-hesitant parents about the heart-breaking experience of one of my patients. She grew up and married the man of her dreams. When she was pregnant with their first child, the woman learned she had cervical cancer. After giving birth, she underwent treatment that saved her life but ended her hopes of bearing more children. Aristotle refers to this transfer of information as the *logos*.

By explaining/advising, you can make your recommendations and reasons for them clear. Base what you say on the common ground you established earlier and acknowledge both the parent's and the adolescent's concerns and how the science addresses them. Then make your recommendations with heartfelt emotion. (See Figure 3 for an example of using C.A.S.E. with a parent.)

## Conclusion

On December 2, 2010, Healthy People 2020 set a national goal of having 80% of females 13 to 15 years of age complete the three-dose HPV vaccine series.<sup>23</sup> We currently are nowhere near achieving that with females and have an even longer ways to go with males. To overcome parental and patient concerns about this vaccine, clinicians will need to become informed about the need for it as well as its safety and effectiveness. Furthermore, they will have to learn how to effectively communicate their recommendations to teens and their parents with passion, authority and evidence. The C.A.S.E. approach provides a brief, structured way to do just that. **MM**

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In the last three years, the author has served as a site principal investigator for several vaccine trials for Novartis and Pfizer and currently serves on a safety review committee and a data-monitoring committee for vaccine studies funded by Merck.

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FIGURE 3

### C.A.S.E. and the Parent

**Parent:** I don't see why the HPV vaccine is recommended now. He's too young for it.

**Clinician:** (Looking at the parent and then the teen to Corroborate) I could see why your mom or dad would think that. (Looking at parent) Many parents initially have that reaction, until I explain to them what the experts say.

**Clinician:** (Pausing and then continuing with About Me). I do read studies and attend lectures from the experts who study HPV and the vaccines. Preventing disease is much better than trying to treat disease. This is important to me and my patients. (Science) What I learned is that we recommend the vaccine routinely now at age 11 or 12 years of age—years and years before one might need the protection. We do this for a number of reasons.

(Looking at teen) One reason is because you get a far better response the younger you are. Now is better than when you are 18 or 20. A second and third reason is that this is a long-lasting vaccine, but one needs all three doses before one gets exposed. It's hard to schedule all these doses, and busy teens and their parents have a really hard time working them into the schedule. (Explain/Advise) Since it's long-lasting, we get started as soon as we can. Because the CDC has permitted starting the vaccine in 9-year-olds, that's when our office actually starts recommending the series.



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# Physical Activity, Fruit and Vegetable Intake, and Smoking in Working-Aged Adults

## *Opportunities for Prevention in Primary Care*

BY CATHERINE A. MCCARTY, PH.D., M.P.H., R.D., ANDRINE LEMIEUX, PH.D., MICHAEL M. HITZ, JEANETTE A. PALCHER AND PATRICIA G. CONWAY, PH.D., M.S.W.

The purpose of this study was to document health behaviors (diet, physical activity, cigarette smoking) in working-aged adults with identified primary care providers. We surveyed 1,344 adults in Minnesota and North Dakota 25 to 64 years of age from Essentia Health primary care patient lists in May of 2012. A 21-page, self-administered questionnaire asking about their health habits was mailed to the sample three times during a three-month period. The response to the three mailings was 38.8%, with a final sample size of 522 completed surveys. Overall, 18.5% (95% CL=18.2, 18.8) of men and 22.3% (95% CL=22.0, 22.6) of women reported currently smoking. The BMI distribution (normal, overweight and obese) was 16.9%, 40.0% and 43.1%, respectively, for men and 32.8%, 31.7% and 35.5%, respectively, for women. Mean fruit and vegetable intake was significantly lower for men than women (mean=1.92 servings a day for men and 2.15 for women). Physical inactivity was reported by 6.2% (95% CL=6.0, 6.4) of the men and 7.2% (95% CL=7.0, 7.4) of the women. After adjusting for the other variables, people in the older age groups were less likely to smoke (OR=0.78, 95% CL=0.65, 0.93) than those in the younger age groups, people living in rural areas were more likely to be obese (OR=1.67, 95%CL=1.16, 2.39) than those living in urban areas, and women were more likely than men to be inactive or have low levels of physical activity (OR=1.47, 95%CL=1.02, 2.11). These data highlight a number of modifiable risk factors for chronic diseases that primary care providers could address in order to improve long-term health outcomes.

Eating healthfully, engaging in physical activity and not smoking have been promoted by the U.S. government and various health organizations as ways to reduce one's risk for a number of adverse health outcomes. Current dietary recommendations include consumption of at least five servings of fruits and vegetables daily.<sup>1</sup> However, many people, especially those living in rural areas, don't eat enough of those foods. A recent review of

2009 Behavioral Risk Factor Surveillance data found that in 37 states adults living in rural areas did not consume the recommended number of servings.<sup>2</sup> Other studies have shown that less social cohesion (involvement in social organizations or groups)<sup>3</sup> is associated with lower fruit and vegetable consumption, as people tend to eat better when they're around others. People in rural areas tend to be more isolated than those in urban settings. Living far

from supermarkets also is associated with rural residents' consuming fewer fruits and vegetables.<sup>4</sup>

In addition, adults should engage in at least 150 minutes of moderately intense physical activity or 75 minutes of vigorous physical activity a week.<sup>5</sup> Although inactivity is associated with obesity in both rural and urban residents, the prevalence of obesity has been shown to be higher in adults living in rural parts of the United

States than in those living in urban areas (39.4% versus 33.4%).<sup>6</sup>

Tobacco use is the most preventable cause of morbidity and mortality in the United States; in 2010, 19.3% of U.S. adults smoked cigarettes.<sup>7</sup> Data from the 2008 Behavioral Risk Factor Surveillance System (BRFSS) indicate higher cigarette smoking rates in rural areas (22.2%) than in suburban (17.3%) or urban areas (18.1%).<sup>8</sup>

As health care organizations become responsible for the care of defined populations of patients, they will need to quantify the health needs of particular communities in order to better target primary prevention efforts such as getting people to quit smoking, manage their weight, eat more healthfully and exercise.

In this study, we wanted to document the extent to which working-aged adults with identified primary care providers from Essentia Health clinics in northern Minnesota and southeastern North Dakota smoked or engaged in other behaviors that can have a negative impact on health.

**Methods**

A random sample of 1,344 adults ages 25 to 64 years stratified by gender and urban/

TABLE 1

**Current Cigarette Smokers Stratified by Age and Gender**

AGE GROUP	MALES N (%)	FEMALES N (%)
25 to 29	3 (7.3%)	5 (18.5%)
30 to 39	10 (20.4%)	28 (35.9%)
40 to 49	10 (20.8%)	14 (24.6%)
50 to 59	11 (17.5%)	16 (17.8%)
60+	7 (15.2%)	2 (5.1%)

rural residence was selected from Essentia Health primary care lists in May of 2012. A 21-page, self-administered questionnaire was mailed to the sample three times over a three-month period in order to improve the response rate. The questionnaire asked about demographics, cigarette smoking, fruit and vegetable intake, physical activity and chronic disease risk factors. The final response rate was 38.8% (522 completed surveys); 116 respondents were males living in an urban setting, 115 were males residing in a rural setting, 138 were females living in an urban setting and 153 were females residing in a rural setting.

Most of the questions were selected from the PhenX Toolkit (www.phenx-toolkit.org), which provides standard measures related to complex diseases, phenotypic traits and environmental exposures.<sup>9</sup> This allows for comparison across population-based studies.

We categorized a person's cigarette use

included in the toolkit and has been validated (test-retest reliability of 0.62) as a low-burden, self-report tool, to summarize frequency and intensity of physical activity at work and leisure.<sup>10,11</sup> Scoring of the SBAS involves determining the intersection of the respondent's on-the-job activity and leisure time activity and categorizing the participant as being inactive or engaging in activity that has light intensity, moderate intensity, hard intensity or very hard intensity.

IBM SPSS Version 21.0 was used for the analyses. T-tests were used to compare means, chi-squared tests were used to compare proportions, and 95% binomial confidence limits were calculated around estimates of proportions. Logistic regression was used to quantify the independent relationship of age, gender and location (urban/rural) with health behaviors. A *P*<0.05 was considered to be statistically significant.

This protocol was reviewed and approved by the Essentia Institute of Rural Health Institutional Review Board.

**Results**

The percentages of respondents who reported being current cigarette smok-

TABLE 2

**Body Mass Index (BMI) Stratified by Age and Gender**

AGE GROUP	BMI<25		BMI 25 to 29.9		BMI 30+	
	MALE N (%)	FEMALE N (%)	MALE N (%)	FEMALE N (%)	MALE N (%)	FEMALE N (%)
25 to 29	5 (31.3%)	12 (44.4%)	6 (37.5%)	6 (22.2%)	5 (31.3%)	9 (33.3%)
30 to 39	10 (20.4%)	29 (37.7%)	17 (34.7%)	27 (35.1%)	22 (44.9%)	21 (27.3%)
40 to 49	6 (12.2%)	21 (35.6%)	20 (40.8%)	14 (23.7%)	23 (46.9%)	24 (40.7%)
50 to 59	8 (12.7%)	21 (23.6%)	27 (42.9%)	30 (33.7%)	28 (44.4%)	38 (42.7%)
60-64	9 (18.8%)	12 (31.6%)	20 (41.7%)	15 (39.5%)	19 (39.6%)	11 (28.9%)

ers differed by age and gender (Table 1). Overall, 18.5% (95% CL=18.2, 18.8) of men and 22.3% (95% CL=22.0, 22.6) of women said they currently smoked. The percentage of women who smoked was higher than the percentage of men who

as never, past or current. Body mass index (BMI) was calculated from self-reported weight and height. Pearson correlation coefficients for estimated daily servings of fruits and vegetables were 0.61 for men and 0.74 for women. We used the Stanford Brief Activity Survey (SBAS), which is



smoked for all age categories except the oldest (over 60).

BMI also varied by age and gender (Table 2). The distribution of BMI measures for the men who responded was 16.9% normal, 40.0% overweight and 43.1% obese; of the women who responded, 32.8% had a normal BMI, 31.7% were overweight and 35.5% were obese. The percentage of male respondents who were overweight/obese was significantly higher than the percentage of female respondents (83.1%, 95%CL=82.8, 83.4 for men and 67.2%, 95% CL=66.9, 67.5 for women).

Mean fruit and vegetable intake was significantly lower for men than for women (mean=1.92 servings per day for men and 2.15 for women,  $t=-2.506$ ,  $P=0.014$  for servings without fries).

Inactivity was reported by 6.2% (95% CL=6.0, 6.4) of men, with men ages 60 to 64 years of age being the least-active age group (11.4%). Among the women who responded, 7.2% reported being inactive (95% CL=7.0, 7.4). The percentage rose to 11.8% among those women in the 60 to 64 age category. The percentage of respondents engaged in intense and very intense activity decreased dramatically by age for both men and women (Figures 1a and 1b).

Logistic regression analyses were run to quantify the independent role of age, gender and location (urban/rural) in predicting current smoking, obesity and physical inactivity. Logistic regression models were not run to predict fruit and vegetable consumption because such a small percentage of respondents were consuming the recommended number of servings each day. After adjusting for other variables, our study found people in the older age categories were less likely than those in younger ones to be current smokers (OR=0.78, 95% CL=0.65, 0.93), rural residents were more likely than those living in urban areas to be obese (OR=1.67, 95% CL=1.16, 2.39), and women were more likely than men to be inactive or have low levels of physical activity (OR=1.47, 95% CL=1.02, 2.11).

FIGURE 1A

**Activity Levels in Males by Age Group**

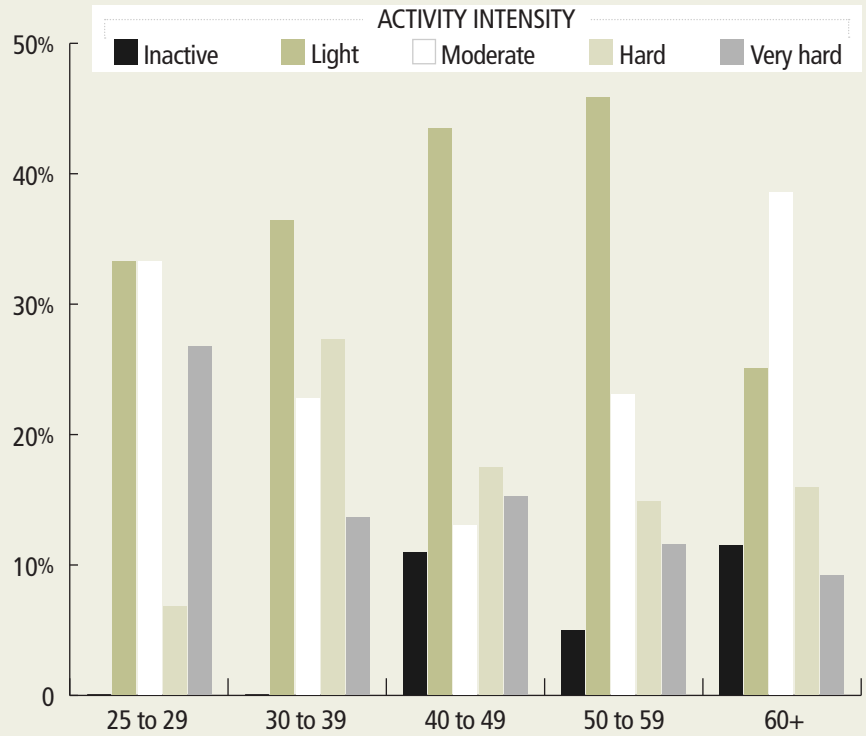
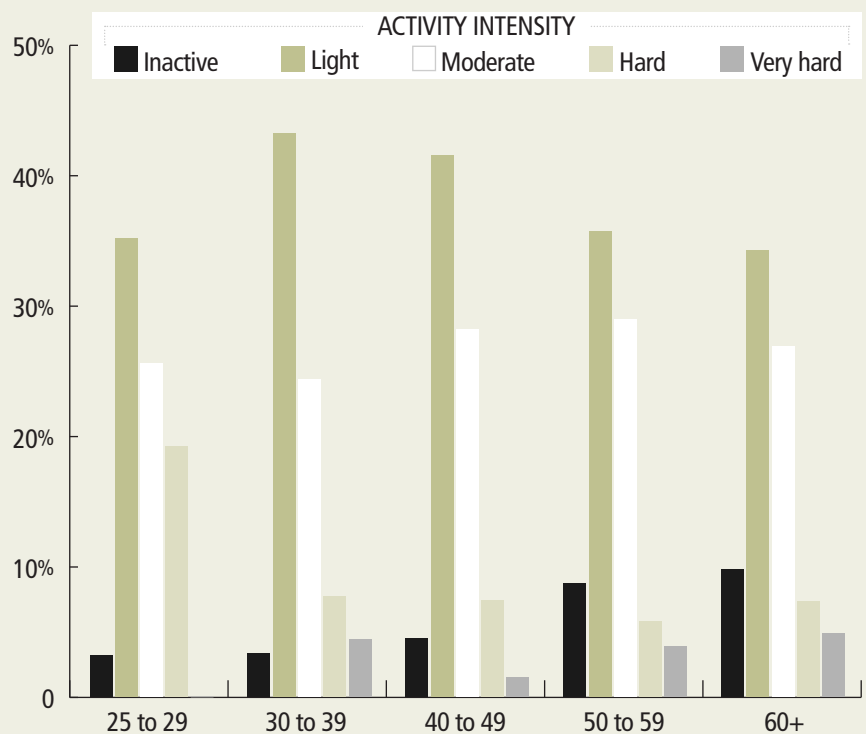


FIGURE 1B

**Activity Levels in Females by Age Group**



## Discussion

The findings from our study point to a number of areas where primary care physicians and other providers can have an impact on their patients' health outcomes and, thus, the health of their communities. The U.S. Preventive Services Task Force has issued recommendations for screening for and managing obesity, behavioral counseling to promote healthful eating and physical activity, and counseling and interventions for quitting smoking.<sup>12</sup> A systematic review of the literature revealed that counseling patients about changing their behaviors is effective in primary care settings.<sup>13</sup>

Several of the behaviors we studied are related. For example, by increasing daily fruit and vegetable intake and physical activity, body mass index should decrease. In our study, the mean intake of fruits and vegetables was so low for everyone that it is not possible to examine whether higher levels of fruit and vegetable consumption would be associated with lower BMI.

The overall smoking rate of 18.5% among the men and 22.3% among the women in our study is lower for men and higher for women than the overall national rate of 19.3% in the 2010 National Health Interview Survey and slightly higher than that for all Minnesotans (13.0% to 15.9%),<sup>7</sup> demonstrating higher smoking rates among rural residents.

Consumption of fruits and vegetables in our study (1.97 servings per day for men and 2.17 for women) was considerably lower than the recommended five servings per day. Fruit and vegetable intake has been shown to be lower in rural communities<sup>2-4</sup> and associated with lower levels of intrapersonal, interpersonal and community support.<sup>14</sup>

Physical activity can be classified as inactive, low, medium and high. People with medium or high levels of physical activity

receive substantial overall health benefits.<sup>5</sup> The majority of respondents in our study reported engaging in low-intensity activity.

## Conclusion

Our findings highlight a number of modifiable risk factors that can affect the development of several chronic diseases, including heart disease, many cancers, osteoarthritis and stroke. Primary care providers can help patients by asking about certain behaviors and helping them make changes through counseling and other interventions in order to avoid poor health outcomes in the long run. Specifically, younger people should be asked about smoking, women should be encouraged to engage in more active physical activity, and men and women in rural areas should be encouraged to lose weight and eat more fruits and vegetables. The data from our study could also serve as a baseline to assess the effectiveness of interventions aimed at changing behaviors. **MM**

Catherine McCarty is a principal research scientist, Andrine Lemieux is an associate research scientist, Michael Hitz is a student intern, Jeanette Palcher is a programmer analyst, and Patricia Conway is senior research scientist with the Essentia Institute for Rural Health.

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## St. Cloud VA Health Care System

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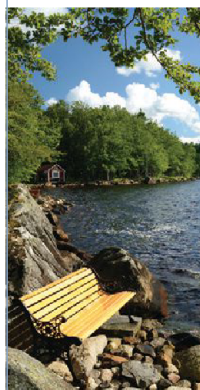
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- Psychiatry
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**For additional information, please contact:**  
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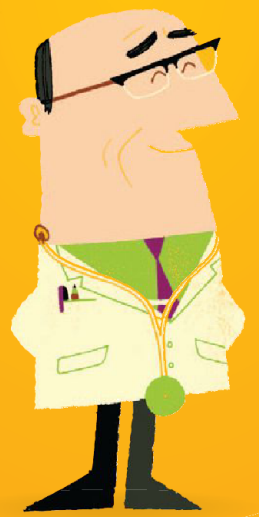
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# A surprising encounter

Even a small gesture can be profound for us and for our patients and their families.

BY SHELDON BERKOWITZ, M.D., FAAP

Several months ago, I agreed to take a complicated new patient on referral from one of my pain and palliative care colleagues. I met the girl and her mom (and, to my surprise, her previous primary care nurse practitioner, who came to help with the transition) for an initial visit. We spent about an hour going over the child's problems and the mom's questions. At the end of the visit, I recommended I see the child in about a month for follow up.

On the morning the child was scheduled to see me back in clinic, she was admitted to the pediatric intensive care unit (PICU) in respiratory distress. While she was there, the PICU doctors and the palliative care doctor kept me up to date on what was happening, as I was not directly involved in the child's in-patient care. I intentionally did not visit her for two reasons: First, many other doctors were involved and I thought my presence might complicate things. Second, I had only met the patient once, so I didn't think my presence or absence at the bedside would make much of a difference for this family. As I learned later on, I was very much mistaken on both counts.

At one point, I was informed that the patient had come off the ventilator and that her mom had made the decision to not reintubate the child if it was needed. Instead, she would take her home with the expectation that she would die. A day or two later, I found myself sitting by the child's palliative care doctor at Grand Rounds. She encouraged me to visit the girl. She told me she thought it would mean a lot to the mother.

I stopped by after Grand Rounds and had a very nice 15-minute visit with the mom. I mostly reinforced what the rest of the medical team had been telling her and emphasized that I thought she was doing a great job advocating for her child and trying to do what was best for her.

At the end of our visit, the girl's mother said she had wondered why I hadn't been by to see her child or her at the hospital. I gave my two reasons, and she seemed to understand but told me she appreciated me coming by.

I shared my thoughts about the visit and what we talked about with the girl's intensivist and palliative care doctor later in the day. That evening, as I was going through emails, I saw one from her palliative care doctor, who informed me that our patient had died peacefully with her mom and family around her. I traded emails with this doctor, mostly to thank

her for encouraging me to visit the family. Mom, I learned, had actually mentioned to this other physician how glad she had been to see me.

This event made me realize that even a few short encounters with patients and families can be significant for them, and that it doesn't take long to establish a bond. It also made me realize that it doesn't take much effort on my part to visit a patient in the hospital—even just to say hi.

I was fortunate to have been sitting by that extraordinary doctor at Grand Rounds, who encouraged me to visit the family because I had no idea that within 12 hours, the child would die.

We clinicians should not underestimate the role that we are allowed to have in our patients' and their families' lives. **MM**

Sheldon Berkowitz is medical director of the general pediatrics clinic at Children's Hospitals and Clinics of Minnesota, Minneapolis.



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