THE APPIFICATION OF PRACTICE

Physicians discover apps that help them provide better, more efficient care.

A simulator for Fistula Repair Page 12
Facebook’s Best Friend in medicine Page 18
Health commissioner on Big Data Page 40
“Your child has cancer.”
Those words can turn a parent’s world upside down.

At University of Minnesota Amplatz Children’s Hospital our pediatric cancer experts can promise parents, like those of 7-year-old Cecilia, the most advanced treatments available including access to the longest-standing and one of the most respected blood and marrow transplant (BMT) programs—just for children.

Whether it’s at the time of initial diagnosis or if the cancer recurs, our patients have access to medical breakthroughs—such as expanded cord blood stem cells to speed recovery—that often lead to cures for cancer and other severe diseases. For Cecilia, this meant that when chemotherapy was no longer enough, the BMT team was right there offering compassionate care, spacious family-friendly rooms and onsite teachers that helped make the time away from home a little easier.

As the care team partners with referring providers, we strive to move patient care beyond where it is today and will not be satisfied until there is a cure. After all, what matters most to kids like Cecilia and their parents is that we help them get back to just being kids.

Read more about Cecilia’s journey and our cancer care and BMT programs at uofmchildrenshospital.org/cancerreferral.
Indications and Usage
Victoza® (liraglutide [rDNA origin] injection) is indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus.

Because of the uncertain relevance of the rodent thyroid C-cell tumor findings to humans, prescribe Victoza® only to patients for whom the potential benefits are considered to outweigh the potential risk. Victoza® is not recommended as first-line therapy for patients who have inadequate glycemic control on diet and exercise.

Based on spontaneous postmarketing reports, acute pancreatitis, including fatal and non-fatal hemorrhagic or necrotizing pancreatitis has been observed in patients treated with Victoza®. Victoza® has not been studied in patients with a history of pancreatitis. It is unknown whether patients with a history of pancreatitis are at increased risk for pancreatitis while using Victoza®. Other antidiabetic therapies should be considered in patients with a history of pancreatitis.

Victoza® is not a substitute for insulin. Victoza® should not be used in patients with type 1 diabetes mellitus or for the treatment of diabetic ketoacidosis, as it would not be effective in these settings.

Victoza® has not been studied in combination with prandial insulin.

Important Safety Information
Liraglutide causes dose-dependent and treatment-duration-dependent thyroid C-cell tumors at clinically relevant exposures in both genders of rats and mice. It is unknown whether Victoza® causes thyroid C-cell tumors, including medullary thyroid carcinoma (MTC), in humans, as human relevance could not be ruled out by clinical or nonclinical studies. Victoza® is contraindicated in patients with a personal or family history of MTC and in patients with Multiple Endocrine Neoplasia syndrome type 2 (MEN 2). Based on the findings in rodents, monitoring with serum calcitonin or thyroid ultrasound was performed during clinical trials, but this may have increased the number of unnecessary thyroid surgeries. It is unknown whether monitoring with serum calcitonin or thyroid ultrasound will mitigate human risk of thyroid C-cell tumors. Patients should be counseled regarding the risk and symptoms of thyroid tumors.

Do not use in patients with a prior serious hypersensitivity reaction to Victoza® (liraglutide [rDNA origin] injection) or to any of the product components.

Postmarketing reports, including fatal and non-fatal hemorrhagic or necrotizing pancreatitis. Discontinue promptly if pancreatitis is suspected. Do not restart if pancreatitis is confirmed. Consider other antidiabetic therapies in patients with a history of pancreatitis.

When Victoza® is used with an insulin secretagogue (e.g. a sulfonylurea) or insulin serious hypoglycemia can occur. Consider lowering the dose of the insulin secretagogue or insulin to reduce the risk of hypoglycemia.

Renal impairment has been reported postmarketing, usually in association with nausea, vomiting, diarrhea, or dehydration which may sometimes require hemodialysis. Use caution when initiating or escalating doses of Victoza® in patients with renal impairment.

Serious hypersensitivity reactions (e.g. anaphylaxis and angioedema) have been reported during postmarketing use of Victoza®. If symptoms of hypersensitivity reactions occur, patients must stop taking Victoza® and seek medical advice promptly.

There have been no studies establishing conclusive evidence of macrovascular risk reduction with Victoza® or any other antidiabetic drug. The most common adverse reactions, reported in ≥5% of patients treated with Victoza® and more commonly than in patients treated with placebo, are headache, nausea, diarrhea, dyspepsia, constipation and anti-liraglutide antibody formation. Immunogenicity-related events, including urticaria, were more common among Victoza®-treated patients (0.8%) than among comparator-treated patients (0.4%) in clinical trials.

Victoza® has not been studied in type 2 diabetes patients below 18 years of age and is not recommended for use in pediatric patients.

Please see brief summary of Prescribing Information on adjacent page.
**INDICATIONS AND USAGE:** Victoza® is indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus.

**CONTRAINDICATIONS:**
- Use with caution in patients with severe renal impairment (creatinine clearance <30 mL/min).
- Do not use in patients with type 1 diabetes mellitus or for the treatment of diabetic ketoacidosis, as it would not be effective in these settings.
- Concomitant use of Victoza® and prandial insulin has not been studied.

**WARNINGS AND PRECAUTIONS:**
- Risk of Thyroid C-cell Tumors: Liiraglutide causes dose-dependent and treatment-duration-dependent thyroid C-cell tumors (adenomas and/or carcinomas) at clinically relevant exposures in both genders of rats and mice. Malignant thyroid C-cell carcinomas were detected in rats and mice. The risk of thyroid C-cell tumors was not increased in cancer incidence or incidence-adjusted incidence compared to controls. It is unknown whether Victoza® will cause thyroid C-cell tumors, including malignant thyroid C-cell carcinomas, in humans, as the human relevance of liiraglutide-induced rodent thyroid C-cell tumors is not known. There was no evidence of thyroid C-cell hyperplasia among patients treated with Victoza® and thyroid C-cell hyperplasia has been observed in patients treated with other GLP-1 receptor agonists.
- Risk of Acute Renal Failure: There have been postmarketing reports of acute renal failure and worsening of chronic renal failure, which may sometimes require hemodialysis in Victoza®-treated patients. Some of these events were reported in patients without preexisting renal impairment. The risk of acute renal failure is increased in patients with preexisting renal impairment.
- PediatriC Use: Safety and effectiveness in children have not been established.

**ADVERSE REACTIONS:**
- Clinical Trials Experience:
- Table 1: Adverse reactions reported in open-label trials in patients treated with Victoza® 0.6 mg once-daily, Victoza® 1.2 mg once-daily, and placebo. Data represent the percentage of patients who experienced the adverse reaction. The percentages in all tables have been rounded to the nearest whole number.

**Table 1: Adverse reactions reported in open-label trials in patients treated with Victoza® 0.6 mg once-daily, Victoza® 1.2 mg once-daily, and placebo (%)**

<table>
<thead>
<tr>
<th>Adverse Reaction</th>
<th>Victoza® 0.6 mg</th>
<th>Victoza® 1.2 mg</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>6.0%</td>
<td>6.6%</td>
<td>8.5%</td>
</tr>
<tr>
<td>Nausea</td>
<td>26.4%</td>
<td>25.4%</td>
<td>26.3%</td>
</tr>
<tr>
<td>Vomiting</td>
<td>10.5%</td>
<td>5.8%</td>
<td>9.5%</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>9.7%</td>
<td>9.4%</td>
<td>5.3%</td>
</tr>
<tr>
<td>Constipation</td>
<td>9.1%</td>
<td>9.5%</td>
<td>3.8%</td>
</tr>
</tbody>
</table>

**Table 2: Adverse reactions reported in % of Victoza®-treated patients and occurring more frequently than with placebo (%)**

<table>
<thead>
<tr>
<th>Add-on to Metformin Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 114</td>
</tr>
<tr>
<td>All Victoza® N = 497</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Headache</td>
</tr>
<tr>
<td>Nausea</td>
</tr>
<tr>
<td>Vomiting</td>
</tr>
<tr>
<td>Diarrhea</td>
</tr>
<tr>
<td>Constipation</td>
</tr>
</tbody>
</table>

**Table 3: Adverse reactions reported in % of Victoza®-treated patients and more frequent with Victoza® than with placebo (%)**

| Add-on to Glimepiride + Metformin N = 442 |
| N = 26-week combination therapy trials |
| | | |
| | | |
| Headache | 9.0% | 6.6% | 9.5% |
| Nausea | 26.4% | 25.4% | 26.3% |
| Vomiting | 10.5% | 5.8% | 9.5% |
| Diarrhea | 9.7% | 9.4% | 5.3% |
| Constipation | 9.1% | 9.5% | 3.8% |

**Clinical Studies:**
- There have been clinical studies establishing conclusive evidence of macromolecular reduction with Victoza® or any other antidiabetic drug.

**ADVERSE REACTIONS:** Clinical Trials Experience: Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice. The safety of Victoza® has been evaluated in 8 clinical trials. A double-blind 52-week monotherapy trial compared Victoza® 1.2 mg/day, Victoza® 1.8 mg/day, and glimepiride 8 mg/day. A double-blind 26-week add-on to metformin trial compared Victoza® 0.6 mg once-daily, Victoza® 1.2 mg once-daily, and placebo; An open-label 26-week add-on to metformin trial compared Victoza® 1.0 mg once-daily, Victoza® 1.5 mg once-daily, and placebo. An open-label 26-week add-on to metformin trial compared Victoza® 1.0 mg once-daily, and placebo. An open-label 26-week add-on to metformin trial compared Victoza® 1.0 mg once-daily, and placebo.
In the 26-week open-label trial comparing Victoza® to sitagliptin, 1.8 mg once daily + glimepiride to metformin and/or sulfonylurea monotherapy, the incidence of hypoglycemic events defined as symptoms accompanied by a fingerstick glucose <56 mg/dL was comparable among the treatment groups (approximately 5%).

**Table 5: Incidence (%) and Rate (episodes/patient-year) of Hypoglycemia in the 52-Week Monotherapy Trial and in the 26-Week Combination Therapy Trials**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Monotherapy</th>
<th>Active Comparator</th>
<th>Placebo Comparator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoza®</td>
<td>N = 497</td>
<td>Glimepiride</td>
<td>N = 248</td>
</tr>
<tr>
<td>Patient not able to self-treat</td>
<td>0</td>
<td>0</td>
<td>—</td>
</tr>
<tr>
<td>Patient able to self-treat</td>
<td>9.7 (0.24)</td>
<td>25.0 (1.66)</td>
<td>—</td>
</tr>
<tr>
<td>Not classified</td>
<td>1.2 (0.03)</td>
<td>2.4 (0.04)</td>
<td>—</td>
</tr>
<tr>
<td>Add-on to Metformin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victoza® + Metformin</td>
<td>N = 724</td>
<td>Glimepiride</td>
<td>N = 242</td>
</tr>
<tr>
<td>Patient not able to self-treat</td>
<td>0.1 (0.001)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Patient able to self-treat</td>
<td>3.6 (0.05)</td>
<td>22.3 (1.87)</td>
<td>2.5 (0.06)</td>
</tr>
<tr>
<td>Add-on to Victoza® + Metformin</td>
<td>Insulin detemir + Victoza® + Metformin</td>
<td>None</td>
<td>—</td>
</tr>
<tr>
<td>Continued Victoza® + Metformin alone</td>
<td>N = 163</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Patient not able to self-treat</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Table 4: Adverse Reactions in >5% of Victoza®-treated patients in a 26-Week Open-Label Trial versus Exenatide**

<table>
<thead>
<tr>
<th>Adverse Reaction</th>
<th>Victoza® (N = 439)</th>
<th>Exenatide (N = 235)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nausea</td>
<td>29.1 (0.89)</td>
<td>31.7 (1.14)</td>
</tr>
<tr>
<td>Headache</td>
<td>17.5 (0.55)</td>
<td>15.0 (0.52)</td>
</tr>
<tr>
<td>Constipation</td>
<td>6.3 (0.20)</td>
<td>4.8 (0.16)</td>
</tr>
<tr>
<td>Vomiting</td>
<td>6.7 (0.22)</td>
<td>7.9 (0.27)</td>
</tr>
</tbody>
</table>

**Table 3: Adverse Reactions reported in >5% of Victoza®-treated patients in a 26-Week Open-Label Trial versus Exenatide**

<table>
<thead>
<tr>
<th>Adverse Reaction</th>
<th>Victoza® (N = 232)</th>
<th>Exenatide (N = 235)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nausea</td>
<td>25.6 (0.86)</td>
<td>36.4 (1.26)</td>
</tr>
<tr>
<td>Headache</td>
<td>14.3 (0.49)</td>
<td>14.3 (0.49)</td>
</tr>
<tr>
<td>Constipation</td>
<td>5.3 (0.18)</td>
<td>6.2 (0.21)</td>
</tr>
<tr>
<td>Vomiting</td>
<td>6.5 (0.23)</td>
<td>5.4 (0.19)</td>
</tr>
</tbody>
</table>

**Table 4: Adverse Reactions in >5% of Victoza®-treated patients in a 26-Week Open-Label Trial versus Sitagliptin**

<table>
<thead>
<tr>
<th>Adverse Reaction</th>
<th>Victoza® (N = 439)</th>
<th>Sitagliptin (N = 219)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nausea</td>
<td>29.1 (0.89)</td>
<td>6.7 (0.24)</td>
</tr>
<tr>
<td>Headache</td>
<td>17.5 (0.55)</td>
<td>9.2 (0.33)</td>
</tr>
<tr>
<td>Constipation</td>
<td>6.3 (0.20)</td>
<td>5.6 (0.21)</td>
</tr>
<tr>
<td>Vomiting</td>
<td>6.7 (0.22)</td>
<td>7.9 (0.29)</td>
</tr>
</tbody>
</table>

**Table 5: Incidence (%) and Rate (episodes/patient-year) of Hypoglycemia in the 52-Week Monotherapy Trial and in the 26-Week Combination Therapy Trials**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Monotherapy</th>
<th>Active Comparator</th>
<th>Placebo Comparator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoza®</td>
<td>N = 497</td>
<td>Glimepiride</td>
<td>N = 248</td>
</tr>
<tr>
<td>Patient not able to self-treat</td>
<td>0</td>
<td>0</td>
<td>—</td>
</tr>
<tr>
<td>Patient able to self-treat</td>
<td>9.7 (0.24)</td>
<td>25.0 (1.66)</td>
<td>—</td>
</tr>
<tr>
<td>Not classified</td>
<td>1.2 (0.03)</td>
<td>2.4 (0.04)</td>
<td>—</td>
</tr>
<tr>
<td>Add-on to Metformin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victoza® + Metformin</td>
<td>N = 724</td>
<td>Glimepiride</td>
<td>N = 242</td>
</tr>
<tr>
<td>Patient not able to self-treat</td>
<td>0.1 (0.001)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Patient able to self-treat</td>
<td>3.6 (0.05)</td>
<td>22.3 (1.87)</td>
<td>2.5 (0.06)</td>
</tr>
<tr>
<td>Add-on to Victoza® + Metformin</td>
<td>Insulin detemir + Victoza® + Metformin</td>
<td>None</td>
<td>—</td>
</tr>
<tr>
<td>Continued Victoza® + Metformin alone</td>
<td>N = 163</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Patient not able to self-treat</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Table 4: Adverse Reactions in >5% of Victoza®-treated patients in a 26-Week Open-Label Trial versus Exenatide**

<table>
<thead>
<tr>
<th>Adverse Reaction</th>
<th>Victoza® (N = 232)</th>
<th>Exenatide (N = 235)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nausea</td>
<td>25.6 (0.86)</td>
<td>34.6 (1.26)</td>
</tr>
<tr>
<td>Headache</td>
<td>14.3 (0.49)</td>
<td>14.3 (0.49)</td>
</tr>
<tr>
<td>Constipation</td>
<td>5.3 (0.18)</td>
<td>5.2 (0.19)</td>
</tr>
<tr>
<td>Vomiting</td>
<td>6.5 (0.23)</td>
<td>5.4 (0.19)</td>
</tr>
</tbody>
</table>

**Table 3: Adverse Reactions reported in >5% of Victoza®-treated patients in a 26-Week Open-Label Trial versus Exenatide**

<table>
<thead>
<tr>
<th>Adverse Reaction</th>
<th>Victoza® (N = 232)</th>
<th>Exenatide (N = 235)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nausea</td>
<td>25.6 (0.86)</td>
<td>34.6 (1.26)</td>
</tr>
<tr>
<td>Headache</td>
<td>14.3 (0.49)</td>
<td>14.3 (0.49)</td>
</tr>
<tr>
<td>Constipation</td>
<td>5.3 (0.18)</td>
<td>5.2 (0.19)</td>
</tr>
<tr>
<td>Vomiting</td>
<td>6.5 (0.23)</td>
<td>5.4 (0.19)</td>
</tr>
</tbody>
</table>
## CONTENTS

**September 2013 | VOLUME 96 | ISSUE 9**

### COVER STORY

**22 The appification of practice**
Physicians discover apps that help them provide better, more efficient care.

**BY SUZY FRISCH**

### FEATURES

**12 A simulator for fistula repair**
A team led by a Twin Cities doctor is creating an interactive training program for surgeons in the developing world.

**BY KIM KISER**

**14 Connecting the dots**
Minnesota is moving toward statewide health information exchange, but we still have a ways to go.

**BY HOWARD BELL**

**18 Facebook friend**
Mayo Clinic’s Farris Timimi is on a mission to bring the social media revolution to medicine.

**BY SARAH T. WILLIAMS**

### Clinical AND Health Affairs

**45 Minnesota Clinics’ Adoption, Use and Exchange of Electronic Health Information**

**BY KAREN SODERBERG, M.S., AND MARTY LAVENTURE, PH.D., M.P.H.**

**49 2009 H1N1 Vaccination in Minnesota: An Evaluation by ZIP Code**

**BY MIRIAM HALSTEAD MUSCOPLAT, M.P.H., MARGARET RODDY, M.P.H., ELIZABETH PARILLA, M.P.H., CYNTHIA S. DAVEY, M.S., LAURA FLEEGE, M.P.H., KAREN WHITE, M.P.H., AND KRISTEN EHRSMANN, R.N., M.P.H.**
60 Paging Steve Jobs ... 
Can someone build a better EHR?
BY JON HALLBERG, M.D.

END NOTE

Minneapolis Medicine is intended to serve as a credible forum for presenting information and ideas affecting Minnesota physicians and their practices. The content of articles and the opinions expressed in Minneapolis Medicine do not represent the official policy of the Minnesota Medical Association unless this is specified. The publication of an advertisement does not imply MMA endorsement or sponsorship.
A work in progress

Shortly after buying an Apple II Plus in 1981, I was regaling my dinner mates with tales of my amazing machine and what it could do. A woman across the table, who had been looking puzzled and bemused during my discourse, finally piped up and asked, “But, Chuck, what are you going to do with it?” Momentarily taken aback, I weakly replied, “Recipes?” and then added, as an afterthought, “Maybe I’ll put patient records on it.”

Thus began an odyssey through innumerable computers and software programs searching for the Holy Grail that would computerize my medical records. I moved from the Apple to IBM desktops to laptops. I experimented with Visicalc, Dbase III and Microsoft Access. I finally concluded that building a true electronic medical record (EMR) was beyond my expertise and that I would have to wait for a commercial one.

The wait wasn’t long. Program after program hit the market touting ease of use and instant access to all the patient information one would ever want. As chair of an information systems committee for one Twin Cities hospital system, I sampled some of the offerings of the “big players” in the burgeoning EMR field and gave talks to insurance providers, acting as a veritable cheerleader for what these systems could accomplish. Finally, we could simplify the work providers do every day. We could meaningfully measure what we do and see what works. I was preaching the Holy Grail. The future was now, and it was going to be good.

For the last two years, I have been sitting on top of the Holy Grail, using a full-featured EMR for all of my patient encounters, and the gleam of the Grail has become a bit tarnished. Every day is a “clickfest,” as I click on all the requisite tabs to accomplish the necessary patient tasks and complete the needed documentation for various quality standards being measured. I have become a victim of the dictatorship of the inbox, obsessively trying to keep up with the stream of information that pours into it. And it seems like the software will never do what should be a two-click job in less than five clicks.

And yet the EMR is an improvement. The prescription refill process has been trimmed by many steps. Information gathered anywhere within my health care system’s network of hospitals and clinics is readily available. Patients’ past medical histories and problem lists are easy to access once they have been accurately recorded. And the prompts to enter quality information, though irritating at times, do make me do a better job of doctoring.

Really the EMR is just like any technology—a work in progress.

Most depictions of the Holy Grail in art and movies portray it as a treasure, a chalice or a goblet hidden in an obscure place waiting for a Harrison Ford to find it and achieve ultimate wisdom. But wisdom and technological progress don’t occur in one “aha” moment. They emerge slowly over time. Holy Grails are found only in the movies.

Charles Meyer can be reached at meyer073@umn.edu.
Introducing a **FREE** and **Open Source** EHR **Optimized** for Minnesota Providers

**True North Open EMR**

Meaningful use certified
Charting
Scheduling
Billing
eRx
Hosted
On-site
Multi-site
100% web enabled
Unified database

Optimized for:
Community Measures
Healthcare Homes
MIIC
Vaccine for Children
Orders and Results
Accountable Care Organization

To learn more about OpenEMR and the True North initiative go to
www.providerfocused.com
651-472-5678
Using a home blood pressure monitor and transmitting the readings to a pharmacist may be an effective way to control hypertension, a condition that affects approximately 30 percent of adults in the United States and costs more than $50 billion annually.

Those were the findings of a study led by Karen Margolis, M.D., M.P.H., director of clinical research at HealthPartners Institute for Education and Research in Bloomington. The randomized clinical trial involved 450 patients with uncontrolled hypertension from 16 primary care clinics in the HealthPartners system. The patients included individuals with severe uncontrolled hypertension as well as other medical conditions including diabetes, kidney disease and heart disease.

Communication equals control

Patients in eight clinics (n=228) received home blood pressure telemonitors that transmitted readings to pharmacists, who could then adjust their medications as needed over the phone. Patients in the other eight clinics (n=222) received usual care.

Patients used the intervention for 12 months and were followed for six months afterward. Their blood pressure was assessed at six, 12 and 18 months. Margolis and her team found about twice as many patients in the telemonitoring program (57.2 percent) as in the control group (30.0 percent) had controlled blood pressure at six and 12 months. More than 70 percent of the telemonitoring patients had controlled blood pressure at six, 12 and 18 months. At the 18-month follow-up visit, 71.8 percent of those in the telemonitoring program had their blood pressure under control compared with 57.1 percent of those in the control group.

The study was a follow-up to earlier tests of a similar approach that did not include patients with other conditions or a follow-up visit.

The findings were published in the July 3 Journal of the American Medical Association.

New manual on social media

A new book Social Media in Clinical Practice provides practical advice for physicians seeking to become social media savvy. In an online interview in MedPage Today, author Bertalan Meskó says he wrote the book to get doctors up to speed on the topic. When asked why he wrote a book instead of developed an e-learning platform, he said because physicians “stick with the traditional way of learning new things.”

In the book, Meskó explains how to do such things as podcasting, blogging and tweeting and provides information about how to use apps, Facebook and Google. He also addresses the No. 1 concern for many physicians—privacy.

Meskó believes doctors need to use social media. “Using digital technologies, especially social media, is now an integral part of medical communication, and as more and more patients use these platforms, their physicians must be able to deal with this in an evidence-based manner,” he said in the interview.
March 20-22, 2014
Optional Pre-Course Sessions: March 19, 2014
Marco Island, Florida

Pain Medicine for the Non-Pain Specialist

Register Today!
www.mayo.edu/cme/pain2014

The hearing care professionals at Audiology Concepts will look at your patients hearing from every angle - because that's how we deliver the highest standard in hearing care. We pride ourselves at being experts in the latest in hearing technology.

- Physician endorsed
- Burnsville, Edina & Olivia locations
- Pediatric testing (Burnsville)
- Auditory Processing Disorder testing
- Audiological assessments
- Hearing Technology

As a physician with hearing loss since childhood, I have used a number of audiology services. None has been more competent, friendly and had a home-like atmosphere than the office of Audiology Concepts. Her office treats me the way I would hope my own office treats my patients.

- Dr. James Rhode, Edina Family Physicians

Tinnitus does not have to rule your patients lives! Our clinic understands and, in a caring and attentive manner, we will educate your patients on tinnitus, hyperacusis and the variety of treatment options available to them.

- Neuromonics Tinnitus Treatment
- Tinnitus Retraining Therapy
- Tinnitus Sound Therapy
- Misophonia Management
- Hyperacusis Management

6444 Xerxes Ave S • Edina, MN • 952-831-4222
14050 Nicollet Ave S #114 • Burnsville, MN • 952-303-5895

NEW LOCATION NOW OPEN
RC Hospital • 611 East Fairview • Olivia, MN • 320-523-1085
www.audiologyconcepts.com
www.tinnitusclincminnesota.com
The vanishing Rx pad

The physician’s prescription pad is becoming a thing of the past. According to Surescripts, an e-prescribing network used by more than 95 percent of pharmacies in the United States, 69 percent of U.S. office-based physicians prescribed electronically in 2012—up from 58 percent in 2011 and 10 percent in 2008. Eighty-seven percent of e-prescriptions were sent through an electronic health record system and 13 percent were sent through a stand-alone prescribing system.

One reason for the increase in e-prescribing was the fact that 93 percent of community pharmacies now accept electronic prescriptions (98 percent of chain pharmacies and 85 percent of independent drug stores use them). Minnesota ranked second in the country in terms of its progress in adopting e-prescribing. The study found 95 percent of physicians in the state were e-prescribing, up from 49 percent in 2010.
“As physicians, we have so many unknowns coming our way…”

One thing I am certain about is my malpractice protection.”

Medicine is feeling the effects of regulatory and legislative changes, increasing risk, and profitability demands—all contributing to an atmosphere of uncertainty and lack of control.

What we do control as physicians: our choice of a liability partner.

I selected ProAssurance because they stand behind my good medicine. In spite of the maelstrom of change, I am protected, respected, and heard.

I believe in fair treatment—and I get it.

Minnesoț Epilepsy Group is designated as a level 4 epilepsy center—the highest rating by the National Association of Epilepsy Centers.

The Minnesota Epilepsy Group offers a wide range of services including:
- Comprehensive diagnosis and evaluation for seizure disorders in patients of all ages
- State-of-the-art neurodiagnostic monitoring
- Integration of neuropsychological and psychosocial assessment with medical treatment
- The only magnetoencephalography and magnetic source imaging center within the region
- Multiple surgical procedures for intractable epilepsy

“Epilepsy Care for All Ages”

Professional Liability Insurance & Risk Management Services
ProAssurance Group is rated A+ (Superior) by A.M. Best.
ProAssurance.com • 800.282.6242

We have Sub-Specialty Radiologists in Musculoskeletal Radiology, Neuro Radiology, Interventional Radiology, Breast and Cardiac MRI.
320.257.5595 • 866.305.5595 • www.rdradiology.com
1990 Connecticut Avenue South, Sartell, MN 56377
As medical director of the nonprofit Medical Simulation International (MSI), Melchert’s goal is to help train doctors in countries where the problem is endemic. “Obstetrical fistula afflicts millions of women in the developing world,” he says. “The problem remains because of the lack of sufficiently trained medical personnel. There are perhaps 10 qualified surgeons who can treat and train others on the entire continent of Africa, and there’s an enormous backlog of cases to be done.”

The World Health Organization estimates that between 50,000 and 100,000 women primarily in Africa and parts of Asia develop an obstetric fistula each year. Most are young and malnourished and thus have a small pelvis. Few have had prenatal care, and most delivered their baby without the help of a health care professional. The problem begins when the baby’s head gets stuck in the birth canal. If it remains in that position for long, it can cut off the blood supply to the surrounding tissue. When the necrotic tissue falls away, the woman is left with a hole between her vagina and bladder or rectum.

A simulator for fistula repair

A team led by a Twin Cities doctor is creating an interactive training program for surgeons in the developing world.

BY KIM KISER

In a tiny office outside the hyperbaric chamber at Abbott Northwestern Hospital in Minneapolis, Pete Melchert, M.D., appears to be playing a video game. He uses the mouse on his laptop to pick up a virtual instrument and place it on a virtual patient, racking up points when he picks up the correct one and places it in the right location and losing them when he gets it wrong. Melchert isn’t sneaking a quick game of Code Blue. Rather, he’s demonstrating software he has created for teaching physicians in Africa to repair obstetric fistulas.
Fistula has both medical and social consequences. Not only does the baby often die during birth, but the woman may be unable to have more children. The fistula also causes her to leak urine or feces. “So the girl is rejected by her family, has this physical trauma and can’t be part of society,” Melchert says.

The power of technology
Melchert, who practices internal medicine/pediatrics, admits he hadn’t heard of obstetric fistula until 2003, when he traveled to Ghana as part of a Children’s Surgery International team to care for children being treated for cleft lip and palate at Komfo Anokye Teaching Hospital in Kumasi. “Our hosts welcomed our help with clefting, but they said the real problem they had was with fistulas,” he recalls. “All I knew of were GI intestinal fistulas.” In the United States and other western countries, obstetric fistula is unheard of. “When a woman enters obstructed labor, they know how to get her out,” he says of the ob/gyn teams here.

Consequently, the problem wasn’t on the radar of surgeons in developed countries until recently. And no one had written a curriculum on repairing obstetric fistula until two years ago, when the International Federation of Obstetrics and Gynecology (FIGO) created the Global Competency-Based Fistula Surgery Training Manual. But the manual itself wasn’t enough to solve the shortage of trained surgeons. So representatives from FIGO contacted Melchert, who also now serves as medical director of Children’s Surgery International, which sends surgeons to Third World countries to do procedures and training, and asked for help. “The problem with training is that it takes time and is very costly,” he says. “Many surgeons don’t have the time to go to a center for months to learn to do this.”

The first challenge was figuring out how to make fistula repair training more efficient. “Simulation technologies are becoming the standard for training in the developed world,” Melchert says. “We envisioned an interactive simulator that would bring the manual to life.” But the type of simulators used in the United States are impractical in Africa, as they cost millions and need regular maintenance and repair. Melchert and his team needed something that would work in locations where resources were scarce.

Since establishing MSI two years ago, they have been working with a Seattle company to create software that would run on a basic PC. “Even the most low-resourced hospitals in Africa have a computer for their physicians,” he says. Their idea was to combine video recordings of master fistula surgeons performing procedures, narrative commentary, and interactive assessments and quizzes.

To build the software, they have had to record entire fistula repair procedures using high-definition endoscopic camera equipment, identify the key images, and organize the video clips into a logical sequence. The software engineers then embed “hot spots.” Surgeons who take the training will be required to select the correct instrument from a virtual Mayo stand and drag it to the correct location in the surgical field, among other things. When they make a correct choice, they will progress to the next step. If they make an incorrect choice, they lose points. “We want them to make errors on the simulator, not on a young woman,” Melchert says.

All along, the learner will be tested on pre-op assessment, patient positioning, instrument management, anatomy, post-op management and awareness of complications that may develop. Upon completing a module, the learner will receive a printout with his or her score and feedback about areas where additional training is needed.

The idea is that surgeons will use the software before going to a training center. “This is intended to make it highly productive when they are in the OR,” Melchert says. Surgeons also will be able to refer to the module in their home hospital. “They can pop the disc in, get a refresher and boost their confidence.”

Only the beginning
The first version of the fistula repair simulation will include three cases, which are representative of the types of cases surgeons most often see. Thus far, they have filmed procedures at hospitals in Dakar, Senegal, and Arusha, Tanzania, and are building and testing the modules developed around them. They will film the final case at Addis Ababa Fistula Hospital in Ethiopia in October.

Melchert says MSI plans to begin distributing the software (on CDs) in about a year, adding that it will be included as a supplement to the FIGO manual. “It will be free to providers in the developing world.”

Thus far, the project has been funded through private donations, and the support of fistula foundations and Stryker Corporation.

Melchert says once they complete the fistula repair simulator, the MSI team wants to make others for cleft lip repair, prostatectomy, female incontinence, cataract removal and pediatric airway management. “This will dramatically augment the current capacity,” he says. “The master surgeons who are helping author these are wildly enthusiastic about how much quicker they’ll be able to train their students.”

Kim Kiser is an editor for Minnesota Medicine.
Connecting the dots

Minnesota is moving toward statewide health information exchange, but we still have a ways to go.

BY HOWARD BELL

Minnesota has set a January 1, 2015, deadline for all hospitals and clinics to have an electronic health record (EHR) system that allows them to securely share patient information with other clinics and hospitals outside of their organization. And it looks like the state will meet that deadline in some fashion.

Already, 87 percent of clinics in Minnesota use EHRs and an estimated 90 to 95 percent of clinic-based physicians in the state work in facilities that have them, according to the Minnesota Department of Health. About 80 percent of those EHR systems are certified as “exchange-ready”—meaning they can share patient information in a way that meets state and federal requirements.

The state has created a system in which a digital hub, the Health Information Exchange Bridge (HIE-Bridge), will facilitate the sharing of information. Hospitals and clinics will be able to tap into it through their own EHR systems to request or receive information from others. To begin with, all information will be exchanged in a standard report called a “continuity of care document” (CCD). A CCD will include information about a patient’s immunizations, medications, medical problems, test results, allergies, care plan and insurance.

Avoiding tin-can tangle

Exchanging information through a hub is cheaper and more efficient than everyone connecting to everyone else on their own, says Clark Averill, chair of the board for the Community Health Information Collaborative (CHIC), which oversees HIE-Bridge, and director of information technology for St. Luke’s Hospital in Duluth. With a centralized hub, he says, “you avoid thousands of point-to-point connections that create an untenable tangle of tin cans connected by strings.”

CHIC’s HIE-Bridge is already used by 11 hospitals, 63 clinics and two long-term care facilities in northeastern Minnesota. The system will be upgraded by September 30, and it will take at least another year after that to get the entire state connected, says Cheryl Stephens, Ph.D., CHIC’s president and CEO. CHIC also manages a patient consent repository (patients may opt out of allowing their health information to be exchanged).

The HIE-Bridge will be a two-lane structure, with one lane for sending out (pushing) information and the other for retrieving (pulling) information about patients. A hospital might use HIE-Bridge’s record locator to identify all the hospitals and clinics that have cared for a patient and then send them (push) all a secure electronic message about that patient. Or if a patient is admitted to the emergency department, the hospital could use HIE-Bridge to identify others who treated the patient and request (pull) information going back as far as five years. The information can be imported into the patient’s EHR if the system has that capability or attached to the record if it doesn’t.

RSVP

CHIC has invited all Minnesota hospitals and clinics to subscribe to HIE-Bridge. So far, sign-up has been slow. HealthPartners’ chief information officer Alan Abramson, Ph.D., thinks his organization and others will eventually subscribe partly because HIE-Bridge is currently the only full-service HIE service provider.

Most Twin Cities-area health systems are in no hurry to sign up for a couple of reasons. “The fees charged to connect to HIE-Bridge are an issue,” Abramson says. “And we’re already exchanging a CCD level of patient information electronically with nearly all users of EPIC EHR software.” EPIC users in the metro area have been exchanging patient information for...
a few years using EPIC’s CareEverywhere software. Abramson says by the end of 2013 HealthPartners hopes to exchange information with non-EPIC users using its CareElsewhere software. “Everyone’s kind of waiting for someone else to go first with CHIC because the more subscribers you have, the less expensive it is for everybody,” he says. Meanwhile, EPIC users see little need to subscribe to HIE-Bridge, as it largely duplicates what they’re already doing.

But the 2015 mandate requires subscribing to an HIE service provider. “The goal,” says Stephens, “is to not have silos of patient information, but to have seamless push and pull exchange among all providers.”

That will mean bringing together separate efforts in geographic pockets around the state, according to Abramson. “You’ve got CHIC in the northeast, EPIC users in the metro area and Mayo’s Beacon network in the southeast.”

Beacon is a network of hospitals, clinics, schools and public health departments in 11 southeastern Minnesota counties that

“[With a centralized hub] you avoid thousands of point-to-point connections that create an untenable tangle of tin cans connected by strings.”

– CLARK AVERILL

need to subscribe to HIE-Bridge, as it largely duplicates what they’re already doing.

But the 2015 mandate requires subscribing to an HIE service provider. “The goal,” says Stephens, “is to not have silos of patient information, but to have seamless push and pull exchange among all providers.”

That will mean bringing together separate efforts in geographic pockets around the state, according to Abramson. “You’ve got CHIC in the northeast, EPIC users in the metro area and Mayo’s Beacon network in the southeast.”

Beacon is a network of hospitals, clinics, schools and public health departments in 11 southeastern Minnesota counties that

The HIE infrastructure

The Duluth-based Community Health Information Collaborative (CHIC) is the organization designated to oversee construction and operation of the infrastructure for exchanging health information electronically in Minnesota. Its HIE-Bridge platform might be considered the state’s main highway. HIE-Bridge is connected to the national network called eHealth Exchange.

Three health data intermediaries (HDIs) will soon be connected to HIE Bridge. Surescripts, primarily used for e-prescribing, now also offers push and query exchange capabilities. Likewise, Emdeon, which has been used for lab transactions and e-prescribing, now also offers push and query messaging. ApeniMED offers push messaging. A clinic or hospital that subscribes to an HDI will connect indirectly to CHIC’s HIE-Bridge.

Initially, Minnesota clinics and hospitals will exchange information using continuity of care documents (CCDs). Like cars on a highway, CCDs are the vehicles for conveying patient information.—H.B.

Effective May 21, 2014, all health care professionals who perform physical examinations and issue medical certificates for Commercial Motor Vehicle (CMV) drivers will be required to complete accredited certification training and pass an examination. This interactive course will provide the essential knowledge necessary to complete the required examination mandated by the Federal Motor Carrier Safety Administration (FMCSA).

Participants will receive the certification required to take the NRCME examination.

• Sunday, October 27, Rochester, Minnesota
• Thursday, November 14, Rochester, Minnesota

2014 Courses and Online CME Course Coming Soon!

SEE COURSE WEBSITES FOR DETAILS
http://www.mayo.edu/cme/internal-medicine-and-subspecialities-2013r171-5
http://www.mayo.edu/cme/internal-medicine-and-subspecialties-2013r171-6
are exchanging asthma action plans for children. CHIC’s role would be to link these regional exchanges to the statewide network, Abramson says, “which is probably the direction we’re headed.”

Miles to go
A number of hospitals and clinics are on track to meet many of the 2015 interoperability goals, according to Jennifer Fritz, deputy director of the Minnesota Department of Health’s Office of Health Information Technology. And many are well into meeting federal meaningful use Stage 2 requirements that include exchange of patient information with providers outside their system. But technical and cost hurdles remain.

Vendors are still scrambling to upgrade some clients’ EHRs so they can exchange CCDs. “Many providers don’t realize they can’t export a CCD until they connect to HIE-Bridge,” Stephens says.

And exchange needs to become simpler for users, according to Averill. “The ultimate goal is seamless, purely electronic exchange of patient information where data is automatically placed in the patient’s record without interrupting EHR workflow,” he says. “Right now, we’ve got manual electronic exchange, where you can send and receive CCDs, but you need a middle step of manual intervention to get the data into a patient record.”

Getting physicians up to speed on using EHRs has been another challenge, one which Paul Kleeberg, M.D., has been dealing with as clinical director for Minnesota’s federally funded Regional Extension Assistance Center for Health Information Technology (REACH). REACH’s field staff have spent the past three and a half years helping mostly smaller clinics and hospitals implement EHR systems and achieve meaningful use. Abramson says he frequently gets “blow-back” from frustrated physicians. “What I hear is ‘Why can’t you IT guys just make this happen? Why does it have to be so hard?’ These are big, complex systems that take hours of time to get comfortable with using—and now we’re adding exchange, another thing for physicians to learn. It’s especially frustrating for physicians when they have to leave their EHR workflow to send or receive summaries of care that are just a bare-bones snapshot

National exchange coming
Minnesota clinics and hospitals that subscribe to the state’s health information exchange network will eventually be able to connect to a nationwide exchange.

The eHealth Exchange will allow Minnesota providers to electronically share patient information with providers in other states, according to Cheryl Stephens, Ph.D., president and CEO of the Duluth-based Community Health Information Collaborative (CHIC), which is guiding the state’s efforts related to health information exchange. “It’ll enhance the quality of care for Minnesotans who winter in the South and then return to Minnesota,” she says. “Providers in each state are kept abreast of any changes in the patient’s health status.”

A Minnesota physician searching for information about a patient will be able to send a query through Minnesota’s health information exchange to providers around the country who either subscribe to the eHealth Exchange or indirectly access it through their state exchange. There currently are no plans to charge for this, although that could change, Stephens says.

The eHealth Exchange has 41 subscribers that include large medical centers, state health information exchanges and federal agencies. Altogether, those entities represent more than 30,000 users, more than 65 million people and more than 1 million shared patient records.

Minnesota clinics and hospitals will be able to use the nationwide exchange to share patient records with federal agencies including the Centers for Medicare and Medicaid Services, the Department of Defense, the Social Security Administration and the Veterans Affairs (VA) Department. Being able to exchange information with the Department of Defense and the VA will allow physicians in the community to combine into one record the care received by patients who transition from active duty to veteran status. It will also greatly reduce processing time for Social Security Disability claims.—H.B.
Averill believes statewide HIE eventually will be “very routine.” But when the January 2015 deadline for interoperable exchange rolls around, he predicts not all EHRs will be talking to each other seamlessly. “It will still take a person doing something to make the electronic exchange work,” he says, “similar to the step required to check email. All exchange won’t happen within a physician’s routine EHR workflow.”

Meanwhile, mandates, money and the quest for quality will motivate physicians to forge ahead with exchange across different health systems and EHRs. “Interoperability,” says Averill, “has become critical to providing the best care.”

Howard Bell is a medical writer and frequent contributor to Minnesota Medicine.
violations. "I don't want to lose control of the conversation."

In a firm but nonscary way (enhanced by the fact that he wears neon-colored eye-
glasses and striped socks), he tells them: “It’s not optional anymore.”

Timimi, program director for the Mayo Clinic’s Advanced Heart Failure and Transplant Cardiology Fellowship Program, also serves as medical director for the institution’s three-year-old Center for Social Media—a second calling for the cardiologist, who specializes in treating patients with advanced heart disease. Officially, he devotes approximately 10 percent of his time to bringing social media tools to life for practitioners, patients and caregivers nationwide. Unofficially, he admits he invests much more of his own time in the endeavor, “because I like it.”

His job, along with that of Director Lee Aase and 10 other full-time staff members at the center, is to get every employee at Mayo Clinic up to speed on making effective use of such tools as blogs, Twitter, Facebook, YouTube, Pinterest and LinkedIn. That includes providing guidelines and training for current employees and orientation for new ones.

Some of the training is practical: How do you open a Twitter account? How do you film, edit and embed a video? How do you govern your privacy settings? How do you monitor your social network channels effectively? Which tool is best for reaching a certain demographic or accomplishing a certain goal?

And some covers legal principles and best practices: How do we separate the professional from the personal? How do we protect patient information and proprietary business information? What kinds of statements by employees posted on social media sites are protected under the National Labor Relations Act?

“We want to make sure [employees’] behavior online is professional, appropriate, and represents themselves and their institution correctly,” Timimi says. “We also want them to have a degree of comprehension and some competence with the tools. So when specific opportunities arise for them to engage with specific patients or explore research or educational opportunities, they’ll understand how to pursue that.”

Mayo Clinic’s Farris Timimi is on a mission to bring the social media revolution to medicine.

BY SARAH T. WILLIAMS

Farris Timimi, M.D., has heard all the reasons why medical professionals are reluctant to use social networking tools as part of their daily practice: “I don’t have the time.” “I’m worried about HIPAA violations.” “I don’t want to lose control of the conversation.”

PHOTOS BY SARAH T. WILLIAMS
TWO TRACKS ARE AVAILABLE, ONE FOR ENDOCRINOLOGISTS AND ONE FOR PRIMARY CARE PHYSICIANS TREATING PATIENTS WITH ENDOCRINE-RELATED DISEASES. CHOOSE THE TRACK THAT BEST SUITS YOUR NEEDS AND REGISTER TODAY. THIS ONE DAY SESSION CAN EARN YOU UP TO 5 AMA PRA CATEGORY 1 CREDITS™.

ENDOCRINE ESSENTIALS FOR PRIMARY CARE

Chaired by Lisa Fish, MD and Carol Wysham, MD, this program is designed for internists, general practitioners, diabetes educators, and other primary care providers.

ENDOCRINE ESSENTIALS PRO

Chaired by Stephanie Lee, PhD and Mark Molitch, MD, this program is designed for endocrinologists and is focused on pituitary and thyroid disorders. Discover how to enhance your practice with the best treatment options possible.

Prices start at just $45 for this one day session. Reduced pricing available for allied health professionals, fellows, and students.

LEARN MORE AND REGISTER AT WWW.ENDOCRINE.ORG/MINN
Timimi got his start on social media as so many do—by using Facebook to reconnect with old friends. For those of his professional colleagues who are reluctant or worried or doubtful, Timimi cites some compelling facts about U.S. adults (mostly from recent Pew Research Center studies) in order to convince them of the growing acceptance of social media and the importance of getting involved in it:

- 85 percent use the Internet
- 72 percent are social network site users
- Roughly one in four minutes of their time online is spent on social media sites
- Looking for health-related information is their third most common online activity (after checking email and using search engines).

“Our patients are there waiting for us,” Timimi says. “So it becomes a moral imperative that we put content in their path, that we walk with them on their journey through illness to recovery, be it online or offline.”

A very high ROI
Although not everyone is comfortable diving in, Timimi is undeterred. And he delights in witnessing colleagues experience their own “aha” social media moments. One such moment came in 2012, after Facebook devised a way for its users to show their organ donor status on their profiles. The change drove up donor registrations, which made headlines. Mayo’s Center for Social Media seized the opportunity to have one of its esteemed transplant cardiologists, Brooks Edwards, M.D., do a Twitter chat and a YouTube video about the importance of becoming an organ donor.

It was Edwards’ first foray into social networking. “He’s not a Luddite, but he’s not far from it,” Timimi says affectionately. “This is not something he would think of doing on his own.”

The Twitter analytics were persuasive: 294 contributors made 952 tweets in eight days after the hour-long chat took place, reaching 3,423,537 separate accounts. Edwards “was shocked at how many lives he was able to touch with what in essence became an investment on his part of an hour and a half of his time,” Timimi says. “It was a compelling argument for how many people you can potentially reach ... with a tool that is so profoundly archived and scalable. I mean the conversation has no geographic limitation at all.”

Edwards has since filmed more YouTube videos and now has his own Twitter account, which he uses to pass on heart-healthy tips and words of encouragement: “I’ve walked 13,630 steps today!” he posted recently, along with a link to Fitbit.

Timimi recalls another aha moment from 2009, a few years after Richard Berger, M.D., a Mayo hand surgeon, pioneered a treatment for the wrist injury that

Words to the wise
Farris Timimi, M.D., whose two young children (ages 5 and 7) have inspired him to hone his rhyming skills, lives by this simple, nearly self-explanatory 12-word social media policy:

- Don’t Lie, Don’t Pry
- Don’t Cheat, Can’t Delete
- Don’t Steal, Don’t Reveal

Here are some of his other suggestions about using social media:

- Don’t endorse as a matter of course.
- Supervisors: Don’t initiate an employee friend request at your own behest.
- Separate your circle of friends from the patients you mend. (He uses a criteria he calls “the bread test.” “If I break bread with someone, I’ll friend them on Facebook.” But beyond that, he would advise providers not to friend patients. I think it creates a disquieting exposure that is difficult to effectively control.”)
- Corporate logo in your user name is a no go.
- Adding a disclaimer is probably saner.
- Don’t practice on the Internet, regardless of your good intent.
- Always surmise that HIPAA applies.
- Speak on your behalf, not that of staff.
- Anonymity is really gimmicky.
- If you chat about your company, identify abundantly.
nearly ended the career of Los Angeles Dodgers outfielder Jayson Werth. Dozens of media outlets picked up the story after Berger successfully repaired the “split tear” in Werth’s ulnotriquetral ligament (an injury that resembles “a tear in a stalk of celery” that is often missed by MRIs, Timimi explains).

The story might have ended happily enough with Werth resuming his red-hot career. But a follow-up Twitter chat with Berger, co-hosted by Mayo and USA Today, gave it a second chapter. It so happened that a Baltimore woman, whose daughter had been plagued for years by wrist pain, was monitoring the chat. She alerted her daughter, Erin Turner, who was poised to have surgery to immobilize her wrist. “She was going to trade a lifetime of pain for a lifetime of disability,” Timimi says.

Based on what she learned during the Twitter chat, Turner got a second opinion at Mayo and had successful surgery to repair the tear. “That’s a patient whose life was changed in a positive way because she learned something on Twitter,” Timimi says.

**The cost of silence**

There are good reasons why it’s no longer an option for physicians to opt out of social media networking, Timimi says. The silence, he says, creates a void that can hurt their reputations and, worse, put whole populations at risk.

“Vaccine hesitancy” is a good example, he says, citing the 2011 pediatric measles outbreak in France and other areas where MMR vaccine penetration is low.

“There are 60,000 members of the American Academy of Pediatrics. If each one of them once a week put out one blog post, one YouTube video, one Facebook post, who becomes the moral authority on this issue? Us or Jenny McCarthy? I think our hesitancy has catastrophic impact. It truly does,” he says.

Physicians risk their own reputations if they don’t participate, he says, explaining that he regularly meets physicians who are upset about a Healthgrades comment or something someone said about them on Yelp or Rate My Doctor. “What we found is if those physicians will open a Twitter account, do a YouTube video, tweet on occasion, and populate a LinkedIn profile, within a few weeks all that [negative] content drops to page 2. And nobody goes to page 2; that’s the hinterlands. For those providers, their digital silence allows someone else to populate their digital avatar.”

Timimi believes social media is simply an extension of what used to be a one-way conversation, from providers to patients. “Transparency is powerful,” he says. “It’s scary at first, but once you get over the fear, the value of bi-directional conversations is truly breathtaking.”

Sarah T. Williams is a longtime Twin Cities journalist.
APPification of Practice

Physicians discover apps that help them provide better, more efficient care.

By Suzy Frisch
When staff from Mayo Clinic’s pediatrics clinic used to mail questionnaires to teenaged patients asking them to assess the state of their asthma, it often took weeks for them to respond, if they bothered. And getting them to return a phone call? Forget it.

But when 25 teenagers received the same questionnaire via the new Asthma Connected Care app developed by internal medicine physician Rajeev Chaudhry, M.D., and others from Mayo’s Center for Innovation, the majority responded within four hours—some even within 10 minutes. Not only did the teens use the app to answer questions about their asthma, they used it to watch videos showing proper use of an inhaler, find out about common allergens, and, if an asthma attack was looming, to quickly look up their individual action plan instead of calling their doctor in a panic or rushing to the emergency room.

“What we know that the traditional way to get care is to either come to the clinic or call someone,” Chaudhry says. “Why not use your smartphone to manage your disease and connect with your care team?”

After nine months, 68 percent of users reported the app helped them control their asthma. “We need larger studies going forward. But what we’re seeing is promising,” he says, adding that Mayo plans to develop similar apps for other chronic conditions.

**WHAT A DIFFERENCE AN APP CAN MAKE.**

**MEDICAL APPS ON THE RISE**

Roughly 97,000 health-related apps were available for smartphones and tablets as of the spring of 2013, according to a report by the market research firm Research2Guidance. Most of those are designed to help people improve their health or stay healthy by tracking their exercise or eating habits, reminding them to take their medications, or providing information about conditions and diseases.

But apps like Mayo’s for asthma that allow physicians to interact with or diagnose patients are starting to appear as well. In April, a Johns Hopkins University medical student made headlines at the TEDMED conference on medical innovation by doing a “smartphone physical,” using 10 apps that turned his smartphone into a medical device. The apps included one for doing an EKG, one that turned the phone into a pulse oximeter and one that enabled ultrasound imaging of the carotid arteries. Former Cleveland Clinic cardiologist Eric Topol, M.D., captured the public’s attention when he used the CellScope app on his smartphone to examine television host Stephen Colbert’s ear during an interview about Topol’s book *The Creative Destruction of Medicine: How the Digital Revolution Will Create Better Health Care.* Topol, who is now with Scripps Health in San Diego, believes smartphones will become an integral part of medicine in the future. “These days I’m prescribing a lot more apps than medications,” he said in
an NBC News interview earlier this year. “This is a powerful device.”

Most physicians don’t yet use apps beyond reference tools such as Epocrates and UpToDate, according to a March 2013 Kantar Media survey. But that hasn’t stopped doctors in Minnesota from designing mobile tools that help patients take better care of themselves or communicate with their doctor, or experimenting with those that turn their smartphones into medical devices. These innovators believe that apps are emerging tools that are here to stay.

With the proliferation of medical apps comes the question: Which ones are truly useful? A group of faculty, staff and students from Johns Hopkins University in Baltimore has launched an effort to evaluate them as part of its Global mHealth (mobile health) Initiative. They currently have 49 studies taking place around the world. In addition, apps that turn phones into medical devices have been subject to approval by the U.S. Food and Drug Administration since 2011. Earlier this year, the FDA clarified that it will regulate apps used for patient care such as those for mobile ultrasound or blood pressure monitoring to ensure they work as intended. About 75 apps have received FDA approval, and the agency has said it aims to review about 20 a year.

Some recently approved apps include AliveCor, which converts a smartphone into a heart monitor and mobile echocardiogram device, and MobileMIM, which helps physicians share diagnostic images and consult on challenging cases. The MyVisionTrack app, which requires a prescription, enables patients with retinal diseases to scan their eyes twice a week; the test results are then uploaded to a server in the physician’s office, where they are read and recorded.

Despite concern that the regulatory approval process might bog down development, that the data gleaned from monitoring patients or that patients submit themselves may not be secure, and that spotty cell phone service in certain areas may render apps unreliable, many believe the “appification” of medicine is inevitable. That’s because apps and mobile medicine truly could improve health care, says Stephen Parente, a professor in the Carlson School of Management at the University of Minnesota who specializes in health economics. Apps could even cut costs by eliminating some office visits or preventing some emergencies.

“I do think, in the end, they will help physicians and they will help consumers, because generationally people are getting more comfortable with these mobile technologies,” Parente says. “With chronic conditions, more surveillance and reminders are better than less, and mobile can help with that. Physicians will see that mobile will help them manage patients better because they are more engaged with them. It will be a win-win eventually; but there will be skepticism as they get used to the technology.”

PARDON THE DISRUPTION

Cardiologist Robert Schwartz, M.D., medical director for education at the Minneapolis Heart Institute and Foundation at Abbott Northwestern Hospital, has gotten used to the technology—and he likes it. Schwartz is an early adopter who regularly uses apps in his practice. He is especially enthusiastic about AliveCor’s mobile heart monitor and the AliveECG app.

They’re timesavers, for one thing. When a patient is experiencing an irregular heart rhythm, Schwartz snaps the $199 AliveCor device on his iPhone and does an electro-
cardiogram on the spot—no need to order the test and wait 20 minutes for a technician to do it.

He thinks the technology may have a future for monitoring patients with heart palpitations. Holter monitors, which must be worn for 24 to 72 hours, are bulky and uncomfortable and, thus, are often removed before the patient experiences palpitations. Schwartz envisions one day giving patients who have an iPhone an AliveCor case. They could clasp their phone to their chest when they feel palpitations, hit record, and it would instantly send him a report.

“It’s an excellent triage device,” Schwartz says, and one that he’s happy to have on flights in case someone is having a medical emergency and the plane lacks the right equipment. “Right now, it’s complementary, but I think it’s going to be disruptive. Cardiologists would no longer need large and expensive equipment in the hospital. The information could be stored in the cloud, and I could conceivably get direct communication from patients anywhere in the world, immediately.”

Although insurers don’t currently pay for AliveCor electrocardiograms, Schwartz believes it and other apps ultimately will lower the cost of care by making doctors more efficient and improving quality. He points to two free apps that are already available:

**ON THE COVER**

“RIGHT NOW, [THE ALIVECOR ECG APP] IS COMPLEMENTARY, BUT I THINK IT’S GOING TO BE DISRUPTIVE. CARDIOLOGISTS WOULD NO LONGER NEED LARGE AND EXPENSIVE EQUIPMENT IN THE HOSPITAL.”

ROBERT SCHWARTZ, M.D.

---

**2013 CME Activities**

(All courses in the Twin Cities unless noted)

**SEPTEMBER – NOVEMBER**

- Lillehei Symposium: Cardiovascular Care for Primary Care Practitioners September 5-6, 2013
- Bakken Symposium: Evaluation, Management & Long-Term Follow-up of Children with Congenital Heart Disease September 16, 2013
- Annual Minnesota Pediatric Hospital Medicine Conference September 25, 2013
- Care Across the Continuum: A Trauma & Critical Care Conference September 27, 2013
- NPHTI/Pediatric Clinical Hypnosis October 3-5, 2013

**Twin Cities Sports Medicine**

Twin Cities Sports Medicine October 4-5, 2013

**Maintenance of Certification in Anesthesiology (MOCA) Training**

Maintenance of Certification in Anesthesiology (MOCA) Training October 5, 2013

**Psychiatry Review: New Directions in Diagnosis & Treatment**

Psychiatry Review: New Directions in Diagnosis & Treatment October 7-8, 2013

**Got Your Shots? 2013 Immunization Conference**


**Transplant Immunosuppression 2013**

Transplant Immunosuppression 2013 October 16-19, 2013

**Practical Dermatology**

Practical Dermatology October 25-26, 2013

**Pediatric Trauma Summit**

Pediatric Trauma Summit November 1-2, 2013

**Donald Gleason Conference on Prostate & Urologic Cancers**

Donald Gleason Conference on Prostate & Urologic Cancers November 8, 2013

**For a full activity listing, go to [www.cmecourses.umn.edu](http://www.cmecourses.umn.edu).**

**Twin Cities Sports Medicine**

Twin Cities Sports Medicine October 4-5, 2013

**Maintenance of Certification in Anesthesiology (MOCA) Training**

Maintenance of Certification in Anesthesiology (MOCA) Training October 5, 2013

**Psychiatry Review: New Directions in Diagnosis & Treatment**

Psychiatry Review: New Directions in Diagnosis & Treatment October 7-8, 2013

**Got Your Shots? 2013 Immunization Conference**


**Transplant Immunosuppression 2013**

Transplant Immunosuppression 2013 October 16-19, 2013

**Practical Dermatology**

Practical Dermatology October 25-26, 2013

**Pediatric Trauma Summit**

Pediatric Trauma Summit November 1-2, 2013

**Donald Gleason Conference on Prostate & Urologic Cancers**

Donald Gleason Conference on Prostate & Urologic Cancers November 8, 2013

**Internal Medicine Review & Update**


**Emerging Infections in Clinical Practice & Public Health: New Developments**

Emerging Infections in Clinical Practice & Public Health: New Developments November 22, 2013

**ONLINE COURSES**

(CME credit available)

www.cme.umn.edu/online

- Fetal Alcohol Spectrum Disorders (FASD) - Early Identification & Intervention
- Global Health - 7 Modules to include Travel Medicine, Refugee & Immigrant Health
- Nitrous Oxide for Pediatric Procedural Sedation

**Office of Continuing Medical Education**

612-626-7600 or 1-800-776-8636

email: cme@umn.edu

**University of Minnesota**

Medical School

**Promoting a lifetime of outstanding professional practice**
a year ago, he powered up the app for both Android and iPhones and tablets. It has been winning raves from pharmacists ever since. Researchers from the University of Arkansas who reviewed 160 medication adherence apps in the *Journal of the American Pharmacists Association* ranked MyMeds as one of the three most promising ones for tackling the problem.

Shah's app addresses the major causes of nonadherence: forgetting to take the drug, forgetting to refill the drug, not having enough education/information about the purpose of the drug, cost and side effects.

Shah, who has a bachelor's degree in psychology from Boston University, incorporated numerous principles from cognitive psychology into the app. Its WhyMeds feature strongly reiterates why patients need to take a medication, what it does (in plain English), and how it helps them stay healthy.

Patients on blood pressure medication, for example, see the name of a drug, a statement that it helps control high blood pressure, and an information explaining that controlling their blood pressure will prevent strokes or kidney failure.

MyMeds also promotes adherence by looping in doctors, pharmacists, other caregivers or family members, with the patient's permission. Pharmacists handling medication therapy management for a patient—now required by all Medicare Part D drug programs—can help monitor their prescription regimen, dosages and interactions using MyMeds.

In their review, the University of Arkansas researchers considered the app's ability....
Over 60 years Combined Experience in Criminal Defense.

Representing clients on Medical Board Misconduct and Disciplinary matters.

ALLAN CAPLAN
ATTORNEY OF THE YEAR FOR 2010
(Chosen by a panel of lawyers & judges)

JOE TAMBURINO
Super Lawyers
Selected by Minnesota Law and Politics and Minneapolis/St.Paul magazine 2000-2012

612-294-8508

SEE OUR WEBSITE FOR CLIENT VICTORIES AND TESTIMONIALS

www.CaplanLaw.com
to track the doses patients have taken—and missed—and electronically send a report to their doctor especially helpful. Those reports give physicians more detailed information when they talk to patients about why they didn’t take their medication. Is it the side effects? If so, they could try a different dosage or a different drug. If the patient has trouble remembering the mid-day pill, the physician could switch them from a three-pill-a-day prescription to two. “It really gives you the ability to dig deeper into why they aren’t adherent,” Shah says.

**RELATIONSHIP BUILDER**

As the field of mobile medicine continues to evolve, apps may have a real effect on cost, quality and efficiency in health care. More than anything, they may influence the physician-patient relationship. “The future will see a subset of traditional physician/patient interactions that incorporate a mobile interface,” says David Tierney, M.D., assistant program director of Abbott Northwestern Hospital’s internal medicine residency, who developed an app to track resident training on bedside ultrasound (see “Teaching App”). “The person-to-person relationship between physician and patient is an essential component of what we do. The question is, Can telemedicine or mobilized medicine maintain the essential personal aspects of this interaction? There has to be a balance. You can’t be an internal medicine physician without being in front of patients, but there are rapidly changing expectations that will make mobile technology an important part of future interactions between health care providers and their patients.”

Suzy Frisch is a Twin Cities freelance writer.

**TEACHING APP**

Some Medical Apps Help Physicians Themselves.

One being used at Abbott Northwestern Hospital helps internal medicine residents track the exams they do in order to become certified in bedside ultrasound. Abbott started the bedside ultrasound program in 2011 and started developing the app six months in. The app has been in use for a little more than a year.

During their training, residents work on mastering a range of bedside ultrasound exam skills. To get credentialed, they must perform exams in more than 50 areas and document each one.

The method they were using to do that was decidedly old-fashioned. Residents had to jot down information about each exam they did on a 5x7 note card. That is, if they had time, if they remembered, and if they had the cards on hand. That wasn’t always happening. David Tierney, M.D., assistant program director of Abbott’s internal medicine residency and director of its Internal Medicine Bedside Ultrasound (IMBUS) program, thought there had to be a better way. With all of their residents carrying smartphones as pagers, he thought, why not use them to keep track of residents’ progress in learning bedside ultrasound? Teaming with a local developer, he created the IMBUS app.

“We came up with an interface that was quick for them to use and that is auto-populated with the user, date and time,” he says. With just a few clicks, the physician enters information about the ultrasound exam they just performed.

The ultrasound images and physician interpretation are then sent wirelessly to a central server, where Tierney can review the individual exam findings to see whether a resident is properly obtaining and interpreting ultrasound images. The app then updates the resident’s progress using color-coded bars. If, for example, the resident needs to do a minimum of 20 liver exams to be eligible for credentialing and they have completed eight, the bar code for that category shows red. If they have done 20, it’s yellow, and once they are felt to be competent in the technical and interpretation aspects of the exam, the bar turns green. At that point, the resident no longer needs to have a credentialed faculty member with him or her when doing bedside ultrasounds in that area. Tierney says the app makes getting credentialed simpler and faster for all involved. And as more physicians become credentialed in using bedside ultrasound, patients will ultimately benefit.

“Bedside ultrasound will help internal medicine physicians take better care of patients; but it takes a significant amount of time to safely and rigorously train physicians in this new technology. The IMBUS app has made one piece of that training process more efficient, which means a little more time for physicians to spend with their patients.” — S.F.
Choosing a home starts with choosing the right home loan.

Let me help you find the home loan that's right for you.

- As an experienced mortgage loan officer, I will be with you every step of the way, from application to closing.
- You can get personalized answers to your questions and access to educational tools from the Home Loan Guide on my website.
- Prepare for and manage each step of getting a mortgage with our online Home Loan Planner.
- Our one-page Clarity Commitment® summary is written in easy-to-understand language that highlights key terms of your loan.

“Ask me about loans for medical professionals.”

Dan Mills
Mortgage Loan Officer
NMLS ID: 421409
651.334.9589
dmills@bankofamerica.com
http://mortgage.bankofamerica.com/dmills
A birth, a near-death experience and an unusual graduation ceremony.

BY MARIANNE BERNADINO, M.D.

Around the time I turned 30, I asked myself, What would I want to accomplish if I knew I had only 10 years to live? I knew the answer was, Go to medical school. Despite my best efforts, I had been unable to shake the draw toward medicine ever since watching Alan Alda play Capt. Benjamin Franklin “Hawkeye” Pierce in an especially poignant episode of “M*A*S*H.” The question launched three years of prerequisites, MCAT preparation and interviewing. I met my future husband, Kirk, a practicing gastroenterologist, weeks after being accepted. He was thrilled with my career goal and shared my desire to have a family. We were married in our Minneapolis home after my first year of medical school and welcomed Sam into the family at the end of year two. By the end of my fourth year, we were anticipating the arrival of another son.

Even as we planned for the future, I found myself preoccupied with the possibility of my premature death. I had a sense of vulnerability, an awareness that our lives could change in an instant. Perhaps this was due in part to the tragic drowning of an adolescent boy near our home. His body washed out into the lake from a local swimming hole, and the rescue and recovery efforts unfolded outside our back door. Or it may have been the result of watching as a 500-year flood made ribbons out of roads and washed away things I had considered to be permanent.

Regardless of the reason, at my insistence, we completed our wills and advance directives one month prior to Frank’s birth. I counseled my husband on my last wishes and provided him with unsolicited advice on whom to date and marry. I ordered our 2-year-old son his fall and winter wardrobe and told my husband that if I were to die, I would want him to approach the medical school about giving me an honorary M.D. I reasoned that my 12 years as a social worker should make up for the eight weeks of electives I hadn’t completed. I reflected on my personal readiness for death and felt that for the first time in my life, I would be at peace.

Waking

On a Thursday afternoon, I am climbing up through a fog of confusion. Slivers of harsh light crack through the cover of darkness. I am waking up in the wrong place. I try to go back, to re-emerge at home. I listen for the lake and can almost hear the rolling waves gently brushing the beach. I look for the sky-blue walls of our bedroom and the worn edges of our white duvet. I look for my husband and children, but they are not here. I am alone.

As the fog begins to break up, I hear a phone ringing and will it to stop. I catch a glimpse of a trauma surgeon I know and think that I have inserted him into my dream. Why else would he be here? But it is not a dream, it is too real for that. It is some kind of coma. If it is my coma, I reason, then I should be able to control it. I consider everything I see, hear and feel as support for my theory that this new reality may still be escapable. I reach to pull at something on my face and find my wrists are in restraints. My foot finds something firm, and I push against it as hard as I can.

As I continue to wake up, I find my mother is at my bedside. She tells me...
Frank is OK, and I recall with difficulty that I was pregnant. It seems so long ago. Then things come back to me slowly, the first glimpse of Frank over the surgical drape and the nurse telling me he looks good. Then there is nothing. The trail ends. My mother explains something about a bowel resection, and I tell her I have seen many. I have no idea what that has to do with me. I think she also is part of the dream and wait for Kirk to come.

I see him walk into the room, but when I turn to him he is gone. He comes over and over but is never there. I close my eyes and feel the bed tipping backwards. I am being pulled down eight stories to a hospital atrium. My bed is turned so I can see the lake. It is beautiful here. But this isn’t real and goes away.

I realize that I am having hallucinations, but I can’t make them stop. I decide it is better to go with them rather than to fight them. I look out over the lake and see hundreds of people in a park. They are walking toward the hospital. I also see that I am there with my husband and our children, except that our kids are older, school-aged. We have our bikes and we are happy. I see myself very clearly, and my future self sees me. We look at each other. I am in both places. My family is all together. Everything will be OK.

Eventually, Kirk arrives with the infant carrier in one hand and the diaper bag slung over his shoulder. He sets them down, and in his face I see relief. I tell him that something is horribly wrong, and he tries to explain what happened. I can’t believe that he intends for me to stay here. I wonder if he is real. He begins quizzing me on things that only he and I would know. He asks me about my board scores, the paint colors we recently chose and the pair of condors we spotted while hiking in the Andes the day before he proposed—a blessing on our union. Somehow he reaches me and I begin to trust him. He tells me that I was pulseless and needed chest compressions. I have been on a ventilator for five days.

He tells me about everyone who has visited, the people who are praying for me and what a miracle it is that I survived. As he finishes, a small cry emerges from where the infant carrier rests. I watch with curiosity as Kirk reaches in, lifts up the baby and proudly reintroduces me to our son. Frank looks just like his brother.

**Healing**

The first weeks are incredibly hard. I am jealous of every person who walks into my room and walks back out. They have jobs and go home to their families. I wonder what is left for me. With the help of therapists, I regain the strength to sit, stand and walk. I take pride when I am able to do a lap around the unit and quickly advance to two. I transition from a walker to a cane.

The nurses cheer me on, and I dream of the day when I will be able to care for my children. After two and a half weeks, I am discharged to home. I continue to get stronger, and with the help of family and friends, gently ease back into motherhood.

With time, I regain my energy, interview for residencies and complete my remaining rotations. On March 15, I am thrilled to learn that I have matched into psychiatry at the University of Minnesota. Still, I worry about the possibility that my patients might be injured as a result of my care. I wonder how I will cope with being on the other side of harm.

**Graduating**

The day before my graduation ceremony, a massive blizzard moves through Iowa and southern Minnesota. When my dad calls to tell me he and my mother will not be able to come because of the weather, I am both relieved that they will be safe and disappointed. I call the rest of my family and tell them not to come as well.

Outside a small town in central Iowa, my sister is driving to a doctor’s appointment. She slides on an icy bridge and veers into an oncoming vehicle. Although she and her 2–year-old son escape with relatively minor injuries, the driver of the other car does not survive. I feel a deep sense of loss for his family; I worry about the emotional impact on my sister. The accident fuels my fear over the many ways in which harm can happen.

That night, my 3–year-old develops a high fever and is the sickest we have ever seen him. It becomes apparent that Kirk will need to stay home with Sam the next day. I decide that I need to be with my family and notify the school that I am unable to attend the ceremony. There is something about graduation that I am dreading anyway. It no longer feels relevant.

Kirk and I begin hatching a plan for a mock ceremony in our home. He will welcome me into the profession, I will read the oath, Sam will honor me with his Fisher Price stethoscope and Frank will be a witness. The school graciously agrees to loan me an academic hood for this make-shift event. I will be hooded in the place where we exchanged our wedding vows nearly four years earlier.

The day of graduation, Kirk is practicing a buoyant rendition of his commencement speech to Frank’s squeals of approval. As I eavesdrop on his rehearsal, he congratulates “the class of 2013” on their accomplishments including surviving after being brought to the brink of death. He reassures the class that their ability to face adversity—and be made stronger by it—will serve them well in their careers. ✏️

---

**Even as we planned for the future, I found myself preoccupied with the possibility of my premature death. I had a sense of vulnerability, an awareness that our lives could change in an instant.**
As the real class of 2013 gathers for a group photo at the State Theater in Minneapolis, I am carrying Sam around our pediatrician’s waiting room in an effort to distract him. I stop to glance at the photos of the physicians in the practice. Sam asks me where my picture is, and I tell him that I’m not a doctor yet.

Despite a temperature of 104.8, Sam seems OK, and I leave the clinic thankful for our pediatrician, who took a break from his lunch to see us. From the doctor’s office, we make our way toward the theater to pick up my hood. I arrive in the lobby as the last of my classmates heads down the aisle to “Pomp and Circumstance.” One of the event organizers leads me down a side corridor that opens onto stage right, where I wait while he goes in search of the hood they have reserved. From here, I can see the faces of my 220 classmates. I am hit by a wave of sadness that I am not standing with this tremendous group of people. But something seems familiar about the scene. It occurs to me that it is exactly how I imagined my graduation: that I would be there, but not really. The event organizer hands me the hood. I thank him and make my way back to the rear of the theater. As I cross the lobby, I hear the opening speaker say that graduating from medical school makes you a member of a special group. I walk out into the rain where my husband and sleeping children are waiting in the car.

We go home and tuck Sam in bed. Kirk lays down to rest. As I am cleaning, I turn to find that Frank has just pulled himself to standing for the first time. I am shocked that he is doing this just a week after starting to sit and crawl. I exclaim in excitement for him and he smiles from ear to ear. I contemplate all of the milestones that he will have in his life and anticipate the joy of watching him grow and develop.

It occurs to me that medical school was not the end after all but the beginning of the next phase in my journey. I consider the years of training that prepared the nurses and doctors who saved my life, and I am incredibly grateful for their dedication. I admire the courage of the people who critically examined the sequence of events that led up to me coding and their commitment to creating a safer system of care. I recognize that in medicine the potential for harm will always exist but that if I am overwhelmed by this, I will not be able to function as a healer.

As I applaud Frank for his big accomplishment, he waves his arms wildly and then flings his body backwards. He hits the floor hard and wails with shock and anger. I scoop him up, simultaneously bouncing, patting and rubbing. I tell him that it’s OK, that these things happen. He blinks at me through his tears. It gets easier, I reassure him. Standing. It gets easier. MM

Marianne Bernadino is a resident in psychiatry at the University of Minnesota.

This essay received honorable mention in Minnesota Medicine’s writing contest. It is dedicated in fond memory to Dr. Ted Thompson, director of clinical education at the University of Minnesota Medical School, in appreciation of his wisdom and encouragement.
This is how Dr. Eubanks got paid for Meaningful Use.

“When it comes to Meaningful Use, athenahealth did all the legwork... and then they made it easy for me to do.”

—Dr. Reavis Eubanks

After practicing medicine 35 years, Dr. Reavis Eubanks knew it was time for an EHR. As a solo physician, he needed an easy transition and an effective way to begin earning up to $44,000 in Medicare incentive payments.

Athenahealth helped Dr. Eubanks go from paper to payment in just six months. With guidance every step of the way and proven, cloud-based services.

- Best in KLAS EHR
- Free coaching and attestation
- Seamless clinical workflow
- Guaranteed Medicare payments

85% of eligible athenhealth providers attested to Stage 1 Meaningful Use. And we’re ready for Stage 2.

Visit www.athenahealth.com/MM or call 800.981.5085

*ambulatory segment for practices with 11-75 physicians
**If you don’t receive the Federal Stimulus reimbursement dollars for the first year you qualify, we will credit you 100% of your EHR service fees for up to six months until you do. This offer applies to HITECH Act Medicare reimbursement payments only. Additional terms, conditions, and limitations apply.
Is there life after the House of Delegates?

BY DAN HAUSER

Maine did it in 2003. Oregon did it last year. Is Minnesota next in line? The “it” refers to dissolving the state medical association’s House of Delegates (HOD). It’s a thorny topic, and passions run high on both sides of the debate whether it’s in Oregon, Maine, Minnesota or a half dozen other states where medical associations are currently considering such a change.

Each organization is trying to find ways to stay relevant to members. And although they have approached that goal from different angles, they are reaching a similar conclusion—in order to attract a younger, more diverse membership, they need to embrace new strategies to get input from a majority of the membership.

In Minnesota, the HOD, the Board of Trustees and a handful of members have been debating governance for the past three years. Some conclusion should be reached on September 21 at the 2013 MMA Annual Meeting in Brooklyn Park, when the House votes on whether it will replace itself with a policy council that will meet at least two times a year (one being at an all-member annual meeting).

Those opposed to dissolution recognize that the HOD is not working optimally but contend it just needs to be strengthened and improved.

Proponents argue that the HOD is beyond repair. They point to participation, which has been decreasing over the past decade, and note that those who do participate are getting older and don’t accurately reflect the diversity of the MMA’s membership.

These are all familiar refrains to leaders from other state associations. The Oregon Medical Association (OMA) began examining its governance five years ago. As OMA leaders traveled around their state,
they found that 24 out of 36 counties had no functioning county medical society to elect delegates. They heard from members, time and time again, that the House was a barrier to participation; it was unappealing to members.

They ended up overhauling the OMA bylaws and establishing the OMA Board of Trustees as the policy-making body. This decision resulted in an opportunity to review and set policy more than once a year and the transformation of what used to be the House gathering into a general meeting for all members.

"With strong physician leaders at the helm, supported by committed board members from across the state, the Oregon Medical Association took on the challenge to change its governance structure in order to do what’s in the best interest of the organization—ensure we remain relevant," says Joanne Bryson, executive vice president and CEO of OMA.

The Maine Medical Association did away with its House of Delegates in 2003 and replaced it with a general membership meeting held once a year. “The reaction to the change has been overwhelmingly favorable and our attendance at the meeting has improved,” says Gordon Smith, executive vice president. “We can still consider resolutions at the meeting, but since 2012 the resolutions are advisory only to our 25-member board of directors.”

In addition to Minnesota, state medical associations in California, Pennsylvania, Tennessee, Virginia, Washington, Kansas and Ohio are also debating whether to dissolve their House of Delegates.

If the HOD does vote itself out of existence, it does not necessarily mean it’s gone for good, however. If the new governance structure is adopted, the MMA will create a formal process to review whether the change is working. The process would result in a report being presented within three years to the Board of Trustees.

**Hearing all voices**

While most of the focus (and debate) has been around the possible dissolution of the MMA’s House of Delegates, there’s another issue in play—whether to open up the election of MMA leaders to all members.

Currently, only delegates are allowed to vote for president, board members and AMA delegates. With the number of delegates decreasing over the past decade, fewer and fewer members have had a hand in deciding MMA leadership. Thus, it has been proposed that the MMA implement an electronic process so that all members can vote for these positions.

If the measure passes, the MMA will create a nominating committee that will review and vet candidates. During each election cycle, Component Medical Societies (CMSs) will be able to nominate one candidate for trustee, consistent with the requirements of the MMA bylaws and the principles/guidelines adopted by the MMA board. All nominations must be received prior to the review of all candidates by the committee.

The nominating committee also may nominate one or more additional candidates for each available office.

In addition, the MMA’s Leadership Effectiveness and Development committee will create campaign guidelines addressing:

- Candidate distribution of information regarding their candidacy, credentials and reason(s) for running for office
- How candidates will be labeled on the ballot
- Distribution of email addresses for candidate use

If approved, the first all-member electronic elections will take place in the fall of 2014.

**Governance changes in a nutshell**

- Reduce the size of the Board of Trustees from 33 to 12 to 14 (approved in 2012; full implementation by 2015)
- Hold policy forums on timely issues across the state (approved and in progress)
- Use listening sessions to hear from members in all settings (approved and in progress)
- Dissolve the House of Delegates and replace it with an all-member annual meeting to discuss policy
- Create a 40-member Policy Council to advise the Board of Trustees
- Implement electronic all-member elections of president, trustees and AMA delegates
Comedian to perform at president’s dinner

This year’s Annual Meeting won’t be all debate and seriousness. Nationally known comedian Bob Stromberg of “Triple Espresso” fame will entertain those attending the president’s inaugural dinner on September 20.

Originally from Pennsylvania, Stromberg now calls Minnesota home. For more than 30 years, he has entertained audiences of all ages with his unique style of clean comedy. For more information, visit his website at www.bobstromberg.com.

The 2013 Annual Meeting takes place September 20-21 at the Minneapolis Marriott Northwest in Brooklyn Park. For more information, visit www.mnmed.org/AbouttheMMA/2013AnnualMeeting.

2013 resolutions: A seismic shift

Change is afoot for this year’s Annual Meeting. Of the resolutions submitted to the House of Delegates, more than a quarter of them deal with how the MMA will govern itself in the future.

Twenty-eight resolutions were submitted. Six were initially rejected, referred to the Board of Trustees for consideration or reaffirmed by a resolution review committee made up of eight members. Registered delegates had the opportunity to vote whether to keep these resolutions in early August and voted to bring several back. In the end, 26 resolutions will be considered by the House.

The bulk of the resolutions were generated by the Twin Cities Medical Society (TCMS), the state’s largest component medical society (CMS), and nearly half of those deal with governance. Several of the TCMS resolutions seek to maintain and modify the House and its procedures. The MMA Board of Trustees, on the other hand, has put forth a resolution that recommends dissolving the House.

Governance is not the only topic to be considered, though. Others include:

- The future of several CMSs. Park Region Medical Society, East Central Minnesota Medical Society and Mower County Medical Society have proposed dissolving. Plus, in southwestern Minnesota, several CMSs have proposed merging. They include: the Blue Earth County Medical Society, the Blue Earth Valley Medical Society, Camp Release District Medical Society, Lyon-Lincoln Medical Society, Mid-Minnesota Medical Society and the Southwestern Minnesota Medical Society.
- The Minnesota Academy of Family Physicians has put forward two resolutions asking the MMA to study the cost implications and administrative burdens associated with providing quality-improvement data.
- The MMA’s Prescription Opioid Management Advisory Task Force has submitted a resolution seeking to embed the state’s Prescription Monitoring Program (PMP) into electronic health records so it’s easier for physicians to access.
News briefs

Appeals court makes physician-friendly ruling in legal guardian case

A Minnesota Court of Appeals reversed a district court’s decision and ruled in late July that a guardian can authorize removal of a ward’s life support without court approval. The ruling regarded the case of The Guardianship of Jeffers A. Tschumy.

Earlier this year, the MMA submitted an amicus brief supporting the argument that legal guardians have the inherent power to make medical decisions on behalf of their wards, including the decision to decline medical care and to terminate life support. The MMA urged the Court of Appeals to reject the district court’s assertion that all guardians must obtain a court order before authorizing “end of life” care for their wards.

“This is an important ruling from the Court of Appeals,” says Teresa Knoedler, J.D., the MMA’s policy counsel. “Medical decisions are best made by family and guardians in conjunction with physicians and other providers. This ruling keeps that decision-making out of the courts in most circumstances. It’s a good outcome for Minnesota physicians.”

National expert to speak at primary care summit in November

Scott Shipman, M.D., M.P.H., director of Primary Care Affairs and Workforce Analysis at the Association of American Medical Colleges, will be the keynote speaker at the MMA’s Primary Care Physician Workforce Expansion Summit November 12 in Minneapolis.

“The summit is aimed at identifying and sharing strategies for increasing Minnesota’s primary care physician workforce,” says Juliana Milhofer, an MMA policy analyst who is helping organize the event.

The MMA formed a task force earlier this year in an effort to address the state’s primary care physician shortage. Between 2000 and 2030, the percentage of Minnesota’s population age 65 and older is expected to increase from 12 to 24 percent. And in January, when the Affordable Care Act kicks into full gear, more Minnesotans will find themselves in the health insurance pool. Meanwhile, primary care physicians in Minnesota are getting older and closer to retirement. In 2011, more than a third were age 55 or older.

“This is a very serious issue,” says MMA President Dan Maddox, M.D. “Figuring out how to address the shortage is a critical priority for the MMA. The number of patients is growing, while the number of physician is decreasing. That adds up to trouble for any of us who will need care in the future.”

The summit will be held from 4 to 8 p.m. at the Ramada Plaza Minneapolis, 1330 Industrial Boulevard, N.E. For more information on the summit, contact Milhofer at 612-362-3735 or email her at jmilhofer@mnmed.org.

MMA celebrates its 160th anniversary in July

In July, the Minnesota Medical Association turned 160 years old. On July 23, 1853, John H. Murphy, M.D., and 10 young physicians gathered in St. Paul for the first-ever medical profession convention in Minnesota. This convention was the formation of the Minnesota Medical Society, which in 1903 changed its name to the Minnesota Medical Association.

“I can’t imagine those 11 physicians knew what they were starting back in 1853, but I’m sure they would be proud of how their creation turned out,” says MMA President Dan Maddox, M.D. The MMA now has more than 10,000 members and continues to work on behalf of Minnesota physicians and their patients.

Resident program on employment contracts set for October

The MMA will host an informational session/social event on employment contracts for Minnesota residents on October 17 at 6:30 at Rojo Mexican Grill, 1602 West End Boulevard, in St. Louis Park.

This is an excellent opportunity for residents to receive advice from legal experts as well as representatives from large health care provider organizations and independent practices.

For more information, contact Kathleen Baumbach (kbaumbach@mnmed.org), MMA’s manager of physician outreach, at 612-362-3729.
MMA supports changes to how sunlamps are classified

In late June, the MMA offered its full support for a U.S. Food and Drug Administration (FDA) proposal to reclassify sunlamps used in artificial tanning facilities to better protect the public from the dangers of artificial tanning.

The FDA categorizes devices in three ways based upon the risk they pose to health. Currently, sunlamps are listed as a Class I device, the category used for such items as tongue depressors and bandages. The proposal before the FDA is to reclassify sunlamps as a Class II device.

Under the new classification, tanning bed manufacturers would be required to affix labels to the devices noting that there are clear risks to their use, that users should get regular cancer screenings and that sunlamps are not recommended for use by youths.

In the letter, MMA President Dan Maddox, M.D., encouraged the FDA “to take further actions in the future to completely restrict access of minors to artificial tanning facilities.” Such an effort would mirror legislation that the MMA will advocate for in 2014—the complete banning of access to artificial tanning facilities by minors.

Research has shown that exposure to the UV radiation emitted by artificial tanning devices increases one’s risk for developing melanoma by 75 percent. Each year, more than 12,000 Americans die from skin cancer, 9,000 of whom have melanoma. Melanoma rates are rising dramatically across the country, and in Minnesota, the incidence of melanoma among women ages 20 to 49 has doubled since 1995.

Member physicians testify at immunization hearing

Two MMA member physicians testified before an administrative law judge in June in favor of proposed changes to Minnesota’s school and child care immunization law.

Both Laurel Ries, M.D., chair of MMA’s Public Health committee, and Robert Jacobson, M.D., a Mayo Clinic physician who is president of the MN Chapter of the American Academy of Pediatrics, spoke on behalf of the proposed rule changes.

The changes, which would take effect in September 2014, include:

- requiring children enrolling in child care and school-based early childhood programs to be vaccinated for hepatitis A and B
- requiring secondary students to get a meningococcal vaccination beginning in seventh grade
- replacing the current seventh-grade tetanus-diphtheria vaccine with one that also includes pertussis (Tdap).

In addition, the timing of the polio vaccine and DTaP vaccine would be changed to match current medically acceptable standards, and the age for the first varicella (chickenpox) immunization would be changed from 18 months to 15 months for children enrolling in child care and school-based early childhood programs.

“Ensuring that Minnesota’s children are being vaccinated against serious and often life-threatening disease is good medicine, cost-effective medicine, and essential for the health of the public,” Ries testified.

The changes would bring Minnesota in line with the Centers for Disease Control and Prevention’s Advisory Committee on Immunization Practices recommendations.
MMA in action

Terry Ruane, the MMA’s director of membership, marketing and communications, Brian Strub, an MMA manager of physician outreach, and Dave Renner, MMA director of state and federal legislation, attended at the American Association of Medical Society Executives annual meeting in St. Louis in mid-July. The event included a number of educational programs on issues affecting medical societies and physicians.

Renner also attended the AMA State Legislative Strategy Conference in Chicago in early August. This meeting of state medical and specialty society government affairs staff included a discussion on state legislative issues related to health reform, scope of practice, public health and quality improvement. In addition, Renner participated in the AMA Advocacy Resource Center’s Executive Committee meeting. Renner serves as vice chair of the committee.

Renner, Eric Dick, the MMA’s manager of state legislative affairs, and MMA Board Chair Dave Thorson, M.D., convened a meeting of several specialty society leaders and lobbyists in July to discuss legislation that could expand the scope of practice for advance practice registered nurses (APRNs). The meeting included representatives of family medicine, anesthesiology, psychiatry and pain medicine.

In mid-July, Immediate Past President Lyle Swenson, M.D., TCMS President Edwin Bogonko, M.D., and Strub participated in a listening session with the physicians of Metro Urology.

Kathleen Baumbach, an MMA manager of physician outreach, attended Honoring Choices Minnesota’s fourth annual Sharing the Experience Conference in Minneapolis in mid-July.

In July, Baumbach and Strub met with MMA Board member Fatima Jiwa, M.B.Ch.B., to discuss member outreach to pediatricians, physicians with young children and women in medicine.

In late July, Strub and Nancy Bauer of the Twin Cities Medical Society, met with Kevin Brown, D.O., of Hennepin County Medical Center’s Neurology & Specialty Clinic in Chaska, to discuss the role of delegates to the Annual Meeting, resolutions and the ways physicians can have an impact with the MMA and TCMS.

Janet Silversmith, MMA director of policy, was the featured speaker at a general session during the Minnesota Medical Group Management Association summer conference at Breezy Point Resort in late July. Her talk was titled “The Affordable Care Act: T – 6 Months.”

In early August, Strub attended the University of Minnesota’s Medical School orientation. The MMA and TCMS co-sponsored a lunch-and-learn event to welcome new medical students.

Upcoming MMA events

Hippocrates Cafe
Celebrate the creative side of medicine
6:30 p.m.
September 19
Mill City Clinic, Minneapolis

MMA Annual Meeting
September 20-21
Minneapolis Marriott Northwest, Brooklyn Park

What You Need to Know about Employment Contracts
6:30 p.m.
October 17
Rojo Mexican Grill, St. Louis Park

Minnesota Community Measurement Data Portal (webinar)
7:30-9 a.m.
October 31

Primary Care Physician Workforce Expansion Summit
4 to 8 p.m.
November 12
Ramada Plaza Minneapolis

The 2014 Patient Experience Measure (webinar)
7:30-9 a.m.
November 21

Visit www.mnmed.org for more information and to register for each event.
Big Data, big influence

Why our collective data is a social determinant of health.

BY EDWARD P. EHLINGER, M.D., M.S.P.H.

Who owns the Earth? By definition, it is a public good. It is the “commons,” the natural resource available to all, that helps sustain every one of us. Yet, for centuries, the Earth has been arbitrarily partitioned, with groups of people claiming ownership over vast areas and resources. We have further divided and subdivided it so that some relatively small groups and individuals now claim pieces of it as their own.

The Earth’s resources are often extracted, harvested, harvested and used for the benefit of all—for food, shelter, clothing, security and quality of life. But sometimes those resources are used for private gain, rather than the public good. When that happens, some people benefit disproportionately.

Power and money are generally the levers used to gain control over our natural resources. They are also the levers used to gain control over our socioeconomic resources—the social, economic, educational, physical and health care systems that form the environment in which we are born, grow, live, work, age and receive care. We refer to these complex, integrated and overlapping socioeconomic systems as the social determinants of health, as they have a huge impact on our overall well-being. Although our socioeconomic resources can be used for the benefit of many, often they are not, and thus we have unfair and avoidable differences in health status among and within countries.

Big Data and health

Big Data has emerged as a new and powerful force that is rapidly and dramatically transforming our world. The term refers to the massive and complex datasets now being generated, along with our ever-expanding capacity to analyze their content and extract and use information.

Big Data is expanding and modifying our understanding of every aspect of our world and giving us the ability to educate, inform, influence, monitor, track, assess and direct people in ways that were once only imagined.

Big Data has a particularly profound impact on health. In fact, it might be one of the most important social determinants of health because of its overwhelming influence on every aspect of our lives.

The advent of Big Data has allowed us to rapidly decode human DNA, track and prevent disease, predict human behavior, monitor physiological systems, find treatments for cancer, foil terrorists, improve airplane safety, build self-driving vehicles and personalize marketing efforts. Yet there is a downside. As more data are collected in multiple ways from multiple sources, our privacy is eroding. As anyone who uses a credit card, a cell phone or the Internet knows, personal information is already widely shared, often without one’s knowledge or consent.

The impact, both positive and negative, of Big Data is only going to grow, as the amount of data we generate grows. Google’s executive chairman Eric Schmidt said at the 2010 Techonomy conference: “From the dawn of civilization until 2003, humankind generated five exabytes of data. Now we produce five exabytes every two days … and the pace is accelerating.” Big Data will affect everyone on the planet.

With improved health outcomes as a goal, Big Data can be a powerfully positive force. It can be useful in determining the effectiveness of current treatments for all sorts of injuries and diseases. It can provide clues to the causes of infections, cancers and noncommunicable diseases, which can lead to new cures. It also can improve health care by linking electronic health records with vital records, disease surveillance systems, social media, and housing, environment, transportation, employment, finance and education data. Such integration will allow treatment of individuals to be informed by a better
understanding of the physical and social environment in which they live.

In the field of public and population health, the potential benefits of Big Data are innumerable. One example is crowd-sourcing, which may one day enable us to identify infectious disease outbreaks at an early stage, when interventions might mitigate their severity. Linking public health datasets with health records also could help identify issues that affect the health of community members such as environmental triggers for asthma or the density and location of tobacco advertising. It also could help in the development of public policies that promote healthy behaviors. Combined, these efforts could lead to more than $300 billion in health care savings, according to McKinsey and Co. If profit, rather than health, is the goal, Big Data could be used to alter clinical practice in ways that benefit one health care entity or one device manufacturer or pharmaceutical company over others. Similarly, it could allow health plans or insurance companies to target outreach efforts and services to populations based on economic rather than health-improvement goals. We are already seeing Big Data being used to encourage and support unhealthy behaviors such as the consumption of sugar-sweetened beverages and to market products such as menthol cigarettes to minority populations.

**Private good or public commodity?**

Because of its power, Big Data can influence the direction of our health care system and the health of our communities. Beyond that, it could influence the course of our entire society, depending on how it is used.

This raises multiple questions: Is Big Data part of the “commons”? Is it a public good or a private commodity? Who owns it? Who controls it? Who decides what to collect and analyze? Who decides how to use it? Who is responsible for evaluating its impact? Obviously, these are rhetorical questions designed to stimulate an overdue conversation. If Big Data is considered part of the commons, broad community input and involvement will be needed to determine how it could be harnessed to help society more effectively address disparities and guide us toward health equity. If it becomes a private commodity, Big Data most likely will be controlled by those with power and money and used to promote their vested interests. This could lead to even greater inequities.

As we learn more about Big Data, we probably will reach an understanding that it can be both a public good and a private commodity. Like all the social determinants of health, it embodies aspects of both. Our challenge will be to ensure a balance between broad community interests and the more narrow interests of private entities when it comes to influencing the health of our society. The stakes are high because whoever owns Big Data may not own the Earth, but they certainly will be a powerful force in determining the well-being of its inhabitants for the foreseeable future.

Edward Ehlinger is Minnesota’s Commissioner of Health.

**REFERENCES**

Health care’s digital divide

Minnesota’s large hospital systems may be well on their way to meeting goals for electronic health record adoption, but rural and critical access hospitals are being left behind.

**BY PAUL KLEEBERG, M.D.**

Minnesota has been a leader both in adopting health information technology and using it to provide high-quality care at a low cost. The Minnesota Legislature has been an advocate for the use of electronic health record (EHR) systems in hospitals and clinics. In 2004, it established the Minnesota eHealth Advisory Committee to provide recommendations related to the adoption of EHRs and other health information technology. Based on the committee’s recommendations, in 2008 the Legislature mandated that health care providers in the state use interoperable EHR systems by 2015.

The federal government has also driven this. In 2009, Congress passed the Health Information Technology for Economic and Clinical Health (HITECH) Act, part of the Recovery Act, requiring providers and hospitals nationwide to adopt and use EHR technology to meet specific goals (termed “meaningful use”) by 2015. To achieve this, the law provided a mixture of incentives and penalties to drive adoption. The use of health information technology has grown significantly throughout the United States since passage of the HITECH Act. In fact, between 2008 and 2012, EHR system adoption more than doubled in office practices and more than quadrupled in hospitals.

These gains have been impressive, but they have not been evenly distributed. Surveys conducted in 2012 showed that 64 percent of the 131 Minnesota hospitals that responded had a “basic EHR.” Of the 86 rural and critical access hospitals (CAHs) that were included only 47 percent had one. A basic EHR system is one that offers the following functions: patient history and demographics, patient problem lists, physician clinical notes, a comprehensive list of patients’ medications and allergies, computerized orders for prescriptions, and the ability to view laboratory and imaging results electronically.

Large urban systems see benefits

Large health systems in metropolitan areas have a number of advantages when it comes to health information technology. First, they have greater access to resources and skilled temporary staff. Larger organizations are able to afford more expensive and elaborate systems that have been refined and redesigned to meet the needs of integrated systems that have inpatient and ambulatory facilities. Often they have access to information technology experts who can customize the system to meet their unique needs. Finally, since many of these facilities had EHR systems in place prior to the federal government’s incentive program and were already doing many of the things required to earn an incentive, they were able to use those additional dollars to further customize and enhance their systems to meet their quality objectives.

A systematic review of the literature published in 2006 sheds light on this. Reviewers who looked at the impact of EHRs on the quality, efficiency and cost of medical care found that 25 percent of the 257 studies that met the inclusion criteria were from four academic medical centers. These institutions had been using their own internally developed systems for a number of years, and they were the only ones in the study that showed quality and efficiency benefits. This demonstrated two things: First, that it takes time for a facility to see the benefits of using an EHR, and second, that local development and enhancement are necessary to create a system that meets the needs of a facility.

That large systems have been the ones to realize the benefits of EHR systems was evident at the Minnesota eHealth Summit in June of this year. Representatives from two such systems talked about the benefits of using EHRs. Both have large IT staffs, which helped design and implement their EHRs. Both used a mature product and
customized it for their needs. One had been using its EHR for a number of years and was able to show significant benefits. This system had gone paperless in its clinics in 2004 and in its main hospital in 2006.

Small rural hospitals face challenges

Rural and critical access hospitals find themselves in a much different situation. These facilities do not have the same resources at their disposal that large urban hospitals have. Many of them have limited IT staff, making it difficult to customize their EHR system. In addition, the EHR systems designed for these smaller facilities are typically not as mature as the ones used by large systems. Many started out as billing and materials management systems, pharmacy systems, nursing documentation systems and order entry systems designed more for pharmacists who order by vial or tablet than for physicians who order by dose. Order sets, which make electronic order entry easier and are commonly used in large facilities, are often missing in the systems used at smaller hospitals because of the physician and staff time it takes to develop them. To add to the challenge, some of these EHR systems lack a robust physician documentation component, making it impossible for the hospital to give up paper charts altogether. Having to manage patient care using both electronic and paper records is inefficient and increases the chance for error.

Many of these hospitals have asked their EHR vendor for an ambulatory component, thinking it would provide a seamless interface between hospital and outpatient setting. But often, the interface is not seamless, and these products are difficult to use. Because of that, physicians may not see their benefits.

To add to the challenge, physicians practicing in ambulatory clinics affiliated with rural hospital or CAH were excluded from the federal incentive program when it began. Most of these physicians do not use Medicare part B billing, which was a requirement for participation in the program. This May, the Centers for Medicaid and Medicare Services announced that some physicians who bill through critical access hospitals will become eligible for the incentive dollars, if they meet certain criteria; but this may be too little too late to get these physicians to adopt EHR systems. A recent *Health Affairs* article states the problem this way: “Rural hospitals have made substantial progress, with one in eight of them acquiring at least a basic [EHR] system in 2012 alone…. However, the gap between urban and rural hospitals remains.”

In our travels to Minnesota and North Dakota CAHs, we’ve seen evidence of the rural-urban technology divide. We’ve seen physicians who work in these facilities struggle to use their EHR, and it was easy to understand why they were unhappy. The products were a generation behind those being used in large facilities.

Vendors who build products for these small hospitals also struggle. For one thing, they are using all their resources to keep up with the certification requirements for meaningful use and have had little time or resources left to refine and improve their products. Second, they are trying to meet their clients’ upgrade and installation demands in order to keep pace with meaningful use. Consequently, many small hospitals have found themselves on long waiting lists for EHR installation.

Closing the rural-urban gap

Office-based physicians in both rural and urban settings appear to have been able to adopt EHR systems and use them effectively. In Minnesota, 67 percent of all office-based providers and 66 percent of primary care providers had a basic EHR in 2012.

One reason may be because there are a number of good EHR products on the market for ambulatory practices. The American Academy of Family Physicians regularly rates systems and has found that many score very highly in physician satisfaction. Some of those require minimal maintenance as well. A national study found the biggest relative increase in the EHR adoption rate was among older physicians and those working in solo practices and community health centers—groups that historically had low adoption rates. Although small practices continue to lag behind larger ones, the gap has closed significantly. The authors attributed that to the work of the HIT regional extension centers, which were created to help primary care providers with adoption and use of EHR systems.

Although the extension centers were also asked to assist rural hospitals and CAHs, funding for those facilities came later and has not been adequate to support the needs of hospitals. Consequently, many extension centers decided not to work with rural hospitals and CAHs. (Minnesota’s extension center, REACH, has worked with 95 percent of the state’s rural hospitals and CAHs.)

Some small rural hospitals, through strong leadership and a bold vision, have been very successful at gaining physician and staff buy-in and now use their EHR system effectively. Others have been able to achieve meaningful use by leveraging their nursing, pharmacy and IT staff (with minimal physician participation)—an approach that will become more challenging to maintain as the meaningful use requirements become more demanding. The vendors who serve these facilities are working hard to enhance their products and have made significant progress.

But a big concern remains for the rural hospitals and CAHs. Unlike many of the larger facilities that already had EHRs in place, these facilities, which were frequently short on capital, used any meaningful use incentives they received to assist with the initial purchase and installation of their EHR system as opposed to enhancing it.

In the future, rural facilities are going to need assistance as they continue to adopt, enhance and optimize their use of EHR systems. Most started later than their urban counterparts and do not have the same support mechanisms available to them. The HIT regional extension centers can be of significant assistance to these hospitals; however, their contracts are set to expire in February of 2014. If we...
do not figure out a mechanism to provide support and technical assistance to these facilities, the digital divide will only grow wider and the quality, efficiency and safety of health care in our rural communities will fall behind. MM

Paul Kleeberg is chief medical information officer for Stratis Health and clinical director for the Regional Extension Assistance Center for HIT that serves Minnesota and North Dakota.

REFERENCES


Be part of history
Shape the future of the MMA

2013
MMA ANNUAL MEETING
FRIDAY AND SATURDAY,
SEPTEMBER 20 AND 21
Minneapolis Marriott Northwest
(FORMERLY THE NORTHLAND INN)
Brooklyn Park

HERE’S YOUR CHANCE TO:
• Decide the future of MMA governance and the House of Delegates
• Set the direction of MMA for 2013-2014
• Discuss the issues facing medicine at a Policy Forum
• Reacquaint yourself with friends and colleagues

WATCH FOR DETAILS AT:
www.mnmed.org/AnnualMeeting

Your voice is important
Become a delegate by contacting your Component Medical Society or calling the MMA membership team at 612-362-3728.
Minnesota Clinics’ Adoption, Use and Exchange of Electronic Health Information

BY KAREN SODERBERG, M.S., AND MARTY LAVENTURE, PH.D., M.P.H.

In 2007, Minnesota passed a law requiring all health care providers in the state to implement an interoperable electronic health record (EHR) system by January 1, 2015. Since then, the Minnesota Department of Health has been monitoring progress each year by surveying hospitals, clinics and other health and health care facilities about their EHR use. This article summarizes findings from the 2013 survey of ambulatory clinics. Those results show Minnesota clinics are well on the way to achieving the state’s goals for using EHRs to exchange information: 87% of clinics have adopted EHRs, 80% routinely use medication guides and alerts, and 36% exchange health information with unaffiliated settings.

Electronic health record (EHR) systems enable physicians in a variety of settings to access information that can help them deliver care that leads to better outcomes, is less expensive and leaves patients satisfied. The information gleaned from EHRs is also enabling researchers to better understand illness and treatment and health care administrators to identify inefficiencies and drivers of cost.

In 2007, Minnesota enacted legislation that requires all health care providers in the state to implement an interoperable EHR system by January 1, 2015. Since 2010, the Minnesota Department of Health’s Office of Health Information Technology has conducted surveys of health and health care facilities in the state about their adoption and use of any type of EHR system. Those surveys have shown that almost all hospitals, clinical labs, pharmacies and local health departments have adopted an EHR or EHR-like product (Table 1).

This article presents the findings of the latest survey, which focused on EHR use in clinics. It also identifies emerging issues related to the use of EHRs.

The Health Information Technology Survey

The 2013 survey was sent to 1,623 ambulatory clinics (defined as any location where primary or specialty care ambulatory services are provided for a fee by one or more physician). It was administered online between February 15 and March 15, 2013, and consisted of 72 questions. The response rate was 79%, with 1,286 clinics responding.

The survey found nearly nine in 10 (87%) ambulatory clinics had adopted an EHR, representing 1,114 clinics (Table 1). Nationally, 38% of clinic-based physicians reported using an EHR.

Currently, there is no significant difference between the EHR adoption rates in urban and rural clinics. However, specialty care clinics have a lower implementation rate than primary care clinics, with 83% currently using an EHR or in the process of installing one, compared with 93% of primary care clinics. EHR adoption rates among Minnesota’s clinics have increased over time and are expected to continue to increase. Figure 1 shows that since the first clinic survey in 2010, the EHR adoption rate increased from 67% to 87%. As

---

**TABLE 1**

Adoption of Electronic Health Record Systems and Related Technology in Minnesota

<table>
<thead>
<tr>
<th>TYPE OF FACILITY</th>
<th>PERCENT WITH EHRS OR EHR-LIKE SYSTEMS</th>
<th>NUMBER ADOPTING/NUMBER RESPONDING</th>
<th>YEAR OF ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinics</td>
<td>87%</td>
<td>1,114/1,286</td>
<td>2013</td>
</tr>
<tr>
<td>Hospitals</td>
<td>96%</td>
<td>130/136</td>
<td>2012</td>
</tr>
<tr>
<td>Local health departments</td>
<td>94%</td>
<td>67/71</td>
<td>2012</td>
</tr>
<tr>
<td>Clinical labs</td>
<td>97%</td>
<td>133/137</td>
<td>2011</td>
</tr>
<tr>
<td>Nursing homes</td>
<td>69%</td>
<td>217/316</td>
<td>2011</td>
</tr>
<tr>
<td>Chiropractic offices</td>
<td>25%</td>
<td>69/277</td>
<td>2011</td>
</tr>
</tbody>
</table>
of 2013, another 9% of clinics report that they are planning to implement an EHR within the next three years. Earlier data on EHR adoption is limited; a 2005 survey of a subset of adult primary care clinics estimated the adoption rate at 17%.

**Effective Use of EHRs**
The real value of an EHR system is realized when it is used to support workflow and clinical decision-making, gather information for quality-reporting initiatives, and improve the health of individuals and populations. Effective use of EHRs means that the system has tools such as e-prescribing and clinical decision support, and that staff are adequately trained to use them.

The clinic survey measures the use of several tools and functionalities. For this analysis, three clinical decision support (CDS) tools are highlighted: medication guides/alerts, preventive care reminders and clinical guidelines (Figure 2). Four out of five primary and specialty care clinics (892) routinely use medication guides and alerts. More than half (642) are routinely using preventive care reminders, and about half (566) are routinely using clinical guidelines. Use of all three tools has increased substantially over time. Furthermore, there is evidence that physicians and other providers are using multiple tools, with 57% of clinics reporting that their providers use three or more of the following CDS tools: automated reminders for missing labs and tests; chronic disease care plans and flow sheets; clinical guidelines based on patient problem list, gender and age; high-tech diagnostic imaging decision support tools; medication guides/alerts; patient-specific or condition-specific reminders; reminders of preventive care services that are due.

Common reasons why providers do not use CDS tools include too many false alarms, lack of resources to build the tools and the need to redesign workflow.

Another indicator of effective use is electronic prescribing or e-prescribing—secure bidirectional electronic information exchange between prescribers, dispensers (pharmacies), pharmacy benefit managers and health plans, either directly or through an intermediary network. Minnesota has seen a notable increase in the rate of pharmacies using e-prescribing, from 57% in December of 2008 to 95% in April of 2013; currently, nearly 1,000 pharmacies in the state are using e-prescribing. Of the 69 pharmacies that are not, 36 are chain and 33 are independent. An estimated 80% of new and renewal prescriptions in Minnesota are now e-prescribed.

Common barriers to e-prescribing are the technical inability to e-prescribe controlled substances and pharmacies being unable to receive electronic prescriptions.

**Health Information Exchange**
Health information exchange is the secure electronic exchange of clinical information between organizations using nationally recognized standards. The goal is to make information available when and where it is needed, thus improving the quality and safety of care. In Minnesota, a number of efforts are underway to help achieve the secure electronic exchange of clinical information. Currently, most of the exchange is happening between hospitals and clinics that are owned by the same health system or that are affiliated with one another. Figure 3 shows that more than half (54%) of clinics are exchanging...
information with affiliated hospitals or clinics, but a little more than one-third (36%) are exchanging with unaffiliated hospitals or clinics. Common challenges for exchanging information include limited capacity of others to exchange, lack of technical support or expertise, competing priorities, and cost and privacy concerns.

Discussion
This research shows that Minnesota's ambulatory clinics have made great strides toward implementation and effective use of EHR systems. This has been driven in part by key national and state actions. The American Recovery and Reinvestment Act of 2009 authorized $20 billion in funding to develop health information technology infrastructure to promote adoption and use of EHRs. As of May 2013, organizations in Minnesota have received more than $270 million in incentive payments to implement EHR systems. Before these federal incentive dollars became available, policymakers in Minnesota recognized that more effective use of health information technology—including timely exchange of information—was needed to improve the quality and safety of care and to help control costs. The Department of Health recently published guidance that describes Minnesota's law, who is affected, what kind of information should be exchanged, privacy and security requirements, and how organizations can go about exchanging information. The health department will continue to support implementation guidance for providers across the continuum of care.

Over time, EHR systems are being used more effectively. Minnesota has had great success with e-prescribing following the state's 2011 e-prescribing mandate. Because of its high rate of e-prescribing adoption, Minnesota has consistently ranked at or near the top of Surescripts' Safe-Rx Ranking. There is still room for improvement, however, and barriers to interoperability need to be addressed. Some EHR systems have issues that may inhibit optimal utilization such as excessive alerts, poor functionality and features that don't apply to a clinic's practice; as technology evolves these issues should diminish.

Ongoing training will be needed both for the existing workforce and for new hires. Findings from this study show that health informatics and health information technology-related skills are needed to optimize use of EHRs and address changes in workflow. Clinics need staff who can customize and/or maintain an EHR, who have solid computer skills, and who are trained in health informatics.

Patient privacy and security continue to be a concern. In 2012, the Legislature directed the Minnesota Department of Health to study patient consent practices. Key recommendations from this study focus both on work practices and technology. They include the need to help providers develop best practices and standards for monitoring records in order to make sure privacy is not breached and information is not compromised, and to educate patients about how their information is protected.

An emerging issue is consumer engagement—encouraging patients to access and use their personal health information, and identifying best practices for providers to involve patients in their health. Providers can support the concept of “patients as partners” by encouraging patients to register and use their personal health information, and by providing educational materials through the EHR that are tailored to the patient's condition. More than half (57%) of the ambulatory clinics in Minnesota offer an online portal for patients to access their EHR.

EHRs are also important to health care reform efforts at both the state and national level. The expansion of Medicaid eligibility in Minnesota will bring more people onto the health insurance rolls, including some who have complex health care needs and a transient lifestyle. Having an accessible medical record will allow physicians and other providers to review these patients' health histories and provide them with consistent care, even if they have never been seen in that clinic. Minnesota received a $45 million grant from the Centers for Medicare and Medicaid Services to test the Minnesota Accountable Health Model, which is designed to expand the state’s current Medicaid ACO demonstrations and provide more integrated, less fragmented care. Effective use of EHRs, including timely and secure health information exchange among multiple providers, will be essential to achieving the goals of this model.

Conclusion
More and more health care providers are embracing EHR systems and related technologies. Although more work is needed to achieve interoperability, Minnesota’s clinics are well on the way to meeting the state's goals for using EHR technology to exchange information. Much of the progress to date has resulted from collaboration within the health care community.
Health care providers will benefit by continuing to work together to overcome technical barriers and push for better tools and systems. When this happens, they will be well-positioned to optimize patient care and outcomes, and engage patients as partners in their care.

Karen Soderberg is the HIT assessment and evaluation coordinator in the Minnesota Department of Health's Office of Health Information Technology. Martin LaVenture is director of the Office of Health Information Technology.

The authors would like to thank Minnesota Community Measurement and the Health Economics Program and Office of Health Information Technology at the Minnesota Department of Health, Division of Health Policy.

Information about EHR adoption and information exchange in other health care settings is available at www.health.state.mn.us/e-health/assessment.html.

What are the important issues facing your practice? Tell us about them.

MMA Listening Sessions give you the chance to provide feedback on MMA activities, share your ideas and concerns, and help shape the future of Minnesota health care.

Sessions are offered for individual physicians and larger practices.

Call 612-362-3728 to arrange your session.

Always working for Minnesota physicians.
2009 H1N1 Vaccination in Minnesota
An Evaluation by ZIP Code


According to Minnesota Immunization Information Connection (MIIC) data, 23% of Minnesotans were vaccinated against 2009 pandemic H1N1 influenza. We analyzed 2009 H1N1 vaccination data at the ZIP code level to learn more about who received the vaccine between 2009 and 2010. We found significant differences in H1N1 vaccination rates by percentage of residents living below the family poverty line, percentage of non-Caucasian residents in a ZIP code and median family income. When stratified by urban or rural location, median family income was significantly associated with vaccination rate only in urban settings; the percentage of non-Caucasian living in an area was significant only in rural settings. In both urban and rural settings, most H1N1 vaccinations were given in a private facility, although the proportion was much higher in urban ZIP codes (81.5%) than rural ZIP codes (53.2%, P<0.0001). Further research is needed to find out why vaccination rates were associated with increasing median family income in urban areas and why in rural areas, people living in ZIP codes with a higher percentage of non-Caucasian residents were more likely to be vaccinated after controlling for poverty and median income.

The 2009 H1N1 virus was the first to cause pandemic influenza in more than 30 years. The Centers for Disease Control and Prevention (CDC) estimates that between 43 million and 89 million cases occurred in the United States between April 2009 and March 13, 2010.1 During that time, there were an estimated 274,000 hospitalizations and 12,470 deaths related to the infection.1 In Minnesota, the Department of Health reported 1,824 laboratory-confirmed hospitalized cases of 2009 H1N1 influenza; in addition, the state saw 63 confirmed deaths caused by the virus.2

Once H1N1 influenza was identified as a pandemic threat, the federal government began working with manufacturers to develop a vaccine. In July 2009, the national Advisory Committee on Immunization Practices (ACIP) developed a list of recommended target groups for vaccination including pregnant women, caretakers of young children, health care workers, people between the ages of 6 months and 24 years, and nonelderly adults with underlying medical conditions. Approximately 159 million people in the United States and 2.4 million in Minnesota fell into these categories. The ACIP also noted that if vaccine supplies were unexpectedly restricted, the following groups should have priority: pregnant women, people who live or work with children younger than 6 months of age, health care workers with direct exposure to infected patients or the virus, children between 6 months and 4 years of age, and children 5 to 18 years of age who have underlying risk factors. An estimated 700,000 Minnesotans fell into these categories.3

H1N1 vaccine production was protracted compared with seasonal influenza vaccine production because the selected virus strain grew slowly in chicken eggs, which delayed release of the vaccine. When the vaccine became available, distribution was managed by the federal government with state and local public health departments determining which sites received doses. The first doses of H1N1 vaccine became available in late September 2009 in the nasal spray formulation (LAIV, Live Attenuated Influenza Vaccine); the injectable formulation (TIV, trivalent inactivated vaccine) became available in October. During the 2009-2010 flu season, more than 120 million doses of H1N1 vaccine were distributed in the United States.4

Minnesota received its first batch of the H1N1 vaccine on October 1, 2009. Initial doses were given to physicians and others who worked with medically fragile children. Between mid-October and late November, only a small amount of vaccine was available and health department officials recommended that the subset of the target groups identified by the ACIP (pregnant women, individuals who live or
work with children younger than 6 months of age, health care workers with direct exposure to infected patients or the virus, children between 6 months and 4 years of age, and children 5 to 18 years of age who have underlying risk factors) receive those limited doses. On November 30, the vaccine was made available to all of the target groups. On December 16, the Department of Health issued a statement indicating that providers could make the vaccine available to everyone, as long as they had adequate supply. In total, 2,475,000 doses of 2009 H1N1 vaccine were distributed to clinics throughout the state.

This study sought to identify who was vaccinated in Minnesota and what demographic and socioeconomic factors may have played a role in their receiving the vaccine. This information may be useful in planning for future pandemics.

Methods
Immunization rates for 2009 H1N1 were obtained from the Minnesota Immunization Information Connection (MIIC), a web-based immunization database. Providers interested in administering the 2009 H1N1 vaccine were required to pre-register with the Department of Health and enter information about vaccine recipients into MIIC within two weeks of vaccine administration. Even with the two-week grace period, information about many of the recipients was not entered until much later. All doses entered through December 1, 2010, were included in the study. The study population included all individuals older than 6 months of age who had at least one 2009 H1N1 influenza vaccination recorded in MIIC. Children younger than 6 months were excluded from the analysis because the vaccine was not licensed for this age group.

Definition of Variables
We used census data for median household income, percentage of residents in a particular ZIP code with incomes below the federal poverty level, and percentage of persons residing in a ZIP code who were not Caucasian. Data were categorized into approximate quartiles based on distribution. Median family income was categorized as less than $35,000, $35,000 to $40,000, $40,000 to $50,000 and more than $50,000 a year. Percentage of residents living below the federal poverty line was categorized into less than 3%, 3% to 5%, 5% to 8% and more than 8%. Percentage of non-Caucasian residents was categorized as less than 1%, 1% to 2%, 2% to 5%, and more than 5%. ZIP code-level vaccination rates were calculated using 2000 census data ZIP code population estimates for the denominator.

Urban or rural designation was established using Rural-Urban Commuting Area Codes (RUCA), a classification scheme that uses census urbanized area and urban cluster definitions in conjunction with commuting characteristics. ZIP codes were classified as either urban or rural using RUCA codes.

Analysis
Data cleaning and analysis were done using SAS 9.2 and SAS Enterprise Guide 4. Descriptive statistics were presented to describe the study population and determine vaccination coverage. Chi-square tests were used to identify associations between categorized ZIP code-level H1N1 vaccination rates and ZIP code-level independent variables (urban or rural location, median family income, family poverty rate and minority status). Generalized linear models were used to further explore the relationships between urban or rural location, median family income, family poverty rate and minority status with ZIP code-level H1N1 vaccination rates.

Results
According to the CDC’s Behavioral Risk Factor Surveillance System (BRFSS), Minnesota ranked eighth in the nation in terms of the percentage of all eligible residents vaccinated against 2009 H1N1 influenza. Minnesota was first in vaccine coverage (47%) for persons ages 25 to 64 years with medical conditions that put them at higher risk for influenza-related complications. Minnesota also led other states in the region (Illinois, Indiana, Michigan, Ohio and Wisconsin) for H1N1 vaccination coverage. For example, Minnesota vaccinated 41% of those in the initial ACIP target group compared with 33% for the region and 33% for the country. MIIC data showed 23% of eligible people in Minnesota had received at least one dose as of June 22, 2009.

| TABLE 1 Vaccination Rates by Age and Geographic Distribution of Minnesota’s Population |
| AGE | % OF POPULATION | % VACCINATED |
| 6 mos to 4 years | 6.7% | 41.2% |
| 5 to 19 years | 22.5% | 28.0% |
| 20 to 24 years | 6.6% | 13.9% |
| 25 to 49 years | 37.8% | 16.2% |
| 50 to 64 years | 14.4% | 32.8% |
| 65+ years | 12.1% | 33.6% |
| Geographic setting | | |
| Urban | 25.5% | 22.6% |
| Rural | 74.5% | 23.0% |

Source: Population characteristics from Census 2000 data, vaccination rates from MIIC

For more information on the statistical methodology used in this study, contact Miriam Muscoplat at miriam.muscoplat@state.mn.us.
Census 2000 and MIIC data were used to describe statewide population characteristics (age and geographic setting) and vaccination status (Table 1). When data were evaluated at the ZIP code level, there were significant differences in H1N1 vaccination rates based on the percentage of residents living below the family poverty line ($P<0.0001$), the percentage of non-Caucasians ($P=0.0023$) and median family income ($P<0.0001$) (Table 2). There was no statistical difference in the rates of urban versus rural residents ($P=0.189$).

As shown in Table 3, of those vaccinated against 2009 H1N1 ($n=1,221,617$), 27.4% were vaccinated prior to November 30, 2009, when the strictest recommendations were in place. Between November 30 and December 16, 2009, 17.9% were vaccinated, and 54.7% were vaccinated after December 16, 2009, when all of the target group recommendations were lifted. Of those living in an urban setting, 22.6% were vaccinated against 2009 H1N1 whereas 23.0% of those living in a rural setting were vaccinated (Table 1). Private providers in urban areas administered a significantly larger proportion of 2009 H1N1 vaccine than private providers in rural areas (81.5% vs. 53.2%, $P<0.0001$, Table 4).

Location-stratified models identified that associations between H1N1 vaccination rates and family poverty, minority status and median income differed by urban or rural location. In urban locations, higher median family income was significantly associated with increased vaccination rates ($P=0.0017^*$); whereas other socioeconomic status indicators such as poverty and minority status were not significantly associated with vaccination rates. In rural locations, minority status was significantly associated with higher vaccination rates ($P=0.032^*$), higher median family income was marginally associated with higher H1N1 vaccination rates ($P = 0.064^*$), but poverty was not significantly associated with H1N1 vaccination rates.

* data not shown

**TABLE 2**

<table>
<thead>
<tr>
<th>ZIP Code-Level Analysis of Population Characteristics and H1N1 Vaccination Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ZIP CODES WITH VACCINATION RATES &lt;15%</strong></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
</tr>
<tr>
<td><strong>Of residents below poverty line</strong></td>
</tr>
<tr>
<td>&lt;3.0%</td>
</tr>
<tr>
<td>3.0 to &lt;5.0%</td>
</tr>
<tr>
<td>5.0 to 8.0%</td>
</tr>
<tr>
<td>&gt;8.0%</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
<tr>
<td><strong>0.0001</strong></td>
</tr>
<tr>
<td><strong>Of non-Caucasian residents</strong></td>
</tr>
<tr>
<td>&lt;1.0%</td>
</tr>
<tr>
<td>1.0 to &lt;2.0%</td>
</tr>
<tr>
<td>2.0 to 5.0%</td>
</tr>
<tr>
<td>&gt;5.0%</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
<tr>
<td><strong>0.0023</strong></td>
</tr>
<tr>
<td><strong>Median family income</strong></td>
</tr>
<tr>
<td>&lt;$35,000</td>
</tr>
<tr>
<td>$35,000 to &lt;40,000</td>
</tr>
<tr>
<td>$40,000 to $50,000</td>
</tr>
<tr>
<td>&gt;$50,000</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
<tr>
<td><strong>&lt;0.0001</strong></td>
</tr>
<tr>
<td><strong>Urban/rural area</strong></td>
</tr>
<tr>
<td>Urban</td>
</tr>
<tr>
<td>Rural</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
<tr>
<td><strong>0.1893</strong></td>
</tr>
</tbody>
</table>
Discussion
Minnesota has a history of high rates of vaccination for seasonal influenza for both adults and children. In April 2010, the CDC published research that found a correlation between seasonal influenza coverage and H1N1 coverage among children ($r=0.72$) and adults ($r=0.72$). The authors concluded that these strong correlations suggest factors such as the effectiveness of state and local seasonal influenza vaccination campaigns might partly explain the variation in H1N1 vaccination rates among states.

One of the ways Minnesota’s H1N1 vaccine campaign differed from those of other states was its tiered-approach, first targeting high-risk groups identified by the ACIP. Good compliance with Department of Health recommendations was evident early on in the campaign as the majority of individuals vaccinated prior to November 5 were younger than five years of age. Conversely, more than 75% of persons 25 years of age and older waited until after December 16, 2009, when the health department indicated the general public could be vaccinated.

Communication played an important role in ensuring that members of high-risk groups would be the first to receive the vaccination and making sure there was enough supply before expanding to other groups. The health department maintained consistent recommendations and communicated them to providers (primarily by email) and through weekly conference calls with local public health agencies. Feedback from local providers about vaccine usage and availability was critical to state decision makers responsible for expanding the recommendations. Asking certain segments of the population to wait for immunization was a departure from what had been done during previous flu seasons. In particular, it was highly unusual to ask persons older than 65 years of age to wait for their vaccine. It is possible that Minnesota’s staged approach created a demand for vaccine that outlasted the demand experienced by other parts of the country. This may have helped increase coverage.

According to MIIC data, 23.0% of eligible Minnesotans received at least one dose of H1N1 vaccine. The rate of H1N1 immunization was similar in urban and rural settings (22.6% vs. 23.0%, respectively). In both urban and rural communities, the majority of H1N1 vaccinations were given in private settings (clinics, hospitals, nursing homes, long-term care facilities, pharmacies, etc.), although the percentage of people who received the vaccine in those settings was much higher in urban ZIP codes than rural ones (81.5% vs. 53.2%, respectively). This difference in where people in urban and rural areas received their vaccines underscores the need to tailor pandemic planning to the realities of local populations and infrastructure.

<table>
<thead>
<tr>
<th>TABLE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009 H1N1 Vaccination Coverage by Date of First Dose and Age at Vaccination</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DATE OF FIRST H1N1 VACCINATION</th>
<th>AGE AT FIRST H1N1 VACCINATION</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before November 30, 2009</td>
<td>94,704 (57.1%)</td>
<td>106,902 (34.0%)</td>
</tr>
<tr>
<td>November 30, 2009 to December 16, 2009</td>
<td>27,294 (16.5%)</td>
<td>84,242 (26.8%)</td>
</tr>
<tr>
<td>After December 16, 2009</td>
<td>43,924 (6.6%)</td>
<td>123,208 (18.4%)</td>
</tr>
<tr>
<td>165,922</td>
<td>314,352</td>
<td>741,343</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Organization Providing 2009 H1N1 Vaccination by Urban or Rural Setting</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE OF PROVIDER ORGANIZATION</th>
<th>URBAN</th>
<th>RURAL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tribal/IHS</td>
<td>2,989 (0.3%)</td>
<td>8,149 (2.0%)</td>
<td>11,138 (0.8%)</td>
</tr>
<tr>
<td>Public health/community vaccinators</td>
<td>163,416 (18.0%)</td>
<td>186,680 (44.7%)</td>
<td>350,096 (26.4%)</td>
</tr>
<tr>
<td>Correctional facilities</td>
<td>1,720 (0.2%)</td>
<td>867 (0.2%)</td>
<td>2,587 (0.2%)</td>
</tr>
<tr>
<td>Clinics, hospitals, nursing homes, long-term care facilities, pharmacies, etc.*</td>
<td>738,880 (81.5%)</td>
<td>222,097 (53.2%)</td>
<td>960,977 (72.5%)</td>
</tr>
<tr>
<td>Total</td>
<td>907,005</td>
<td>417,793</td>
<td>1,324,798</td>
</tr>
</tbody>
</table>

*Significant difference when compared with all other providers.
Rural/Urban Status and H1N1 Vaccination

Our study did not find a significant difference between H1N1 vaccination rates in urban and rural settings in the unadjusted analysis (Table 2). However, in a multiple regression analysis, two distinct models emerged to describe the factors associated with receipt of H1N1 vaccine in various settings. In urban settings, ZIP codes with higher median income levels predicted H1N1 vaccination after adjusting for poverty and minority status. In rural settings, people living in ZIP codes with a higher percentage of non-Caucasian residents were more likely to be vaccinated after controlling for poverty and median income.

Income/Economics and H1N1 Vaccination

The relationship between family income and seasonal influenza vaccination has been documented in the scientific literature. Linn et al. found influenza vaccination rates increased with household income and education level in their study of 2008 influenza vaccination. The fact that H1N1 vaccine was available at no cost to everyone makes interpretation of this finding more challenging. A study published in 2011 by Galarce et al. found no statistical difference in H1N1 vaccine uptake between those living above and below the federal poverty level. As noted earlier, the majority of H1N1 vaccines (81.5%) administered in urban communities in Minnesota were given in private facilities. It is likely that persons who receive care in private clinics and other facilities have higher median incomes and had less difficulty accessing the H1N1 vaccine, particularly in urban areas.

Race/Ethnicity and H1N1 Vaccination

Our finding that rural ZIP codes with higher percentages of minority residents had higher mean vaccination rates differs from the results of most previous studies. Many have found just the opposite, that non-Hispanic whites have a higher rate of influenza vaccination compared with members of other racial and ethnic minority groups. Frew et al. found low pediatric influenza vaccination acceptance among minority parents. And Galarce found that blacks were the racial or ethnic group least likely to believe the H1N1 vaccine was safe. Unfortunately, our ability to examine the relationship between vaccine rates and race/ethnicity is limited because the data are not available in MIIC.

Several reasons may explain the success in vaccinating members of vulnerable and minority populations in rural Minnesota. For one thing, rural areas have more public health clinics per capita than urban areas. In addition, the population in Minnesota’s rural areas is less diverse, as these areas have fewer residents who are members of racial and ethnic minorities than urban areas. This can make outreach to them easier. Also the fact the Tribal or Indian Health Service clinics in those areas vaccinated more individuals than the Tribal and Indian Health Service clinics in urban parts of Minnesota may help explain the success (Table 4, 2.0% vs. 0.3%, respectively). According to Census 2000 data, 53.2% of Native Americans in Minnesota live in rural ZIP codes.

Limitations

Our study had several limitations. First, ZIP code census data represent an average of all individuals living within a geographic area and may not reflect the racial and economic characteristics of all of its residents. Second, although the most recent data were used, the ZIP code level census data came from the 2000 census. In the nine years between census 2000 and the 2009 H1N1 pandemic, the racial and economic makeup of geographic areas may have changed. Census data were used as the denominator to determine vaccination rate, as MIIC may overestimate the population younger than 18 years of age and underestimate those older than 18 who received the vaccine. MIIC rates are calculations rather than estimates, and they are often lower than those from the National Immunization Survey or the BRFSS. They also are influenced by provider participation in the registry.

Although provider participation is quite high in Minnesota (85% to 90%), not all providers report all shots given.

Conclusion

H1N1 vaccination rates seemed to be influenced by minority status, family income level and urban/rural location. It is not clear why minority status in rural areas was associated with increased immunization rates. Further research is needed to determine if the difference is due to the make-up of the minority populations or if other socioeconomic factors are responsible. Increased H1N1 vaccination rates were associated with higher median income in urban areas. This may be because families with higher median incomes in those areas were more likely to have access to health care. Again, further research is needed to explain this finding. Although a centralized system of vaccine distribution that relied heavily on the private sector worked well in Minnesota during the 2009 H1N1 influenza pandemic, work is needed to make sure the coverage gaps that existed are addressed when planning for a future pandemic.

Miriam Halstead Muscoplat, Margaret Roddy, Elizabeth Parilla, Karen White and Kristen Ehresmann are with the Minnesota Department of Health. Cynthia S. Davey is with the Biostatistical Design and Analysis Center at the University of Minnesota. Laura Fleege was with the Minnesota Department of Health.

The biostatistical components described were supported by Grant Number UL1RR024150 from the National Center for Research Resources, National Institutes of Health (NIH). The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

R E F E R E N C E S


---

AD INDEX

AFFILIATED COMMUNITY MEDICAL CENTER | karib@acmc.com
ALEXANDRIA CLINIC | alexclinic.com
ALLINA HEALTH SYSTEM | allinahealth.org/careers
ALLINA HEALTH SYSTEM | Madalyn.Dosch@allina.com
ATHENA HEALTH | athenahealth.com/MM
AUDIOLOGY CONCEPTS | audiologyconcepts.com
BANK OF AMERICA | mortgage.bankofamerica.com
CAPLAN & TAMBURINO LAW FIRM | CaplanLaw.com
CUYUNA REGIONAL MEDICAL CENTER | cuyunamed.org
THE ENDOCRINE SOCIETY | endocrine.org/minn
FAIRVIEW HEALTH SERVICES | fairview.org
GUARDIAN LUTHERAN | gundersenhealth.org/MedCareers
HEALTHEAST MEDICAL LABORATORY | healtheast.org/html
HEALTHPARTNERS INSTITUTE FOR EDUCATION & RESEARCH | HealthPartnersInstitute.org
HEALTHPARTNERS MEDICAL GROUP | healthpartners.jobs
HEALTHPARTNERS MEDICAL GROUP | diane.m.collins@healthpartners.com
LAKE REGION HEALTHCARE | lrhc.org
LAKEVIEW CLINIC | lakeviewclinic.com
MATRIX MEDICAL NETWORK | Careers@MatrixHealth.net
MAYO SCHOOL OF CPD | mayo.edu/cme/pain2014
MAYO SCHOOL OF CPD – COMMERCIAL DRIVERS | mayo.edu/cme/internal-medicineand-subspecialties-2013r171-6
MILLE LACS HEALTH SYSTEM | mlhealth.org
MMIC | MMICgroup.com
MINNESOTA EPILEPSY GROUP | mnepilepsy.org
MINNESOTA OPERA | mnopera.org
NOVO NORDISK | VictozaPro.com/Care
OLMSTED MEDICAL CENTER | olmstedmedicalcenter.org
PROASSURANCE COMPANIES | ProAssurance.com
REGIONAL DIAGNOSTIC RADIOLOGY | rdradiology.com
SANFORD HEALTH BEMIDJI | sanfordhealth.org
SANFORD HEALTH BEMIDJI ORTHOPEDIC | Celia.Beck@sanfordhealth.org
SLINGSHOT HEALTHCARE INFORMATICS | providerfocused.com
ST. CLOUD VA HEALTHCARE SYSTEM | USAJOBS.gov
ST. PAUL RADIOLOGY | StPaulRad.com
U OF M AMPLATZ CHILDREN’S HOSPITAL | uofmchildrenshospital.org/cancerreferral
U OF M OFFICE OF CONTINUING MEDICAL EDUCATION | cmecourses.umn.edu
UPTOWN DERMATOLOGY & SKINSPA | UptownDermatology.com
WHITESELL MEDICAL STAFFING, LTD | WhitesellMedStaff.com
St. Cloud VA Health Care System

Opportunity Announcement

Opportunities for full-time and part-time staff are available in the following positions:
- Associate Director, Primary & Specialty Medicine (IM)
- Dermatologist
- Geriatrician/Hospice/Palliative Care
- Internal Medicine/Family Practice
- Medical Director, Extended Care & Rehab (Geriatrics)
- Pain Specialist
- Psychiatrist
- Urgent Care Physician (IM/FP/ER)

Applicants must be BE/BC.

Located sixty-five miles northwest of the twin cities of Minneapolis and St. Paul, the City of St. Cloud and adjoining communities have a population of more than 100,000 people. The area is one of the fastest growing areas in Minnesota, and serves as the regional center for education and medicine.

Enjoy a superb quality of life here—nearly 100 area parks; sparkling lakes; the Mississippi River; friendly, safe cities and neighborhoods; hundreds of restaurants and shops; a vibrant and thriving medical community; a wide variety of recreational, cultural and educational opportunities; a refreshing four-season climate; a reasonable cost of living; and a robust regional economy!

Since 1924, the St. Cloud VA Health Care System has delivered excellence in health care and compassionate service to central Minnesota Veterans in an inviting and welcoming environment close to home. We serve over 38,000 Veterans per year at the medical center in St. Cloud, and at three Community Based Outpatient Clinics located in Alexandria, Brainerd, and Montevideo.

Competitive salary and benefits with recruitment/relocation incentive and performance pay possible.

For more information:
Visit www.USAJobs.gov or contact Nola Mattson (STC.HR@VA.GOV)
Human Resources
4801 Veterans Drive
St. Cloud, MN 56303
(320) 255-6301
EEO Employer

Family Medicine

Internal Medicine

Lakeview Clinic is seeking BE/BC family and internal medicine physicians to join our independent, multispecialty, physician-owned group in the southwest metro. This is a traditional practice opportunity with a 4 day work week in the office and inpatient care provided at Ridgeview Medical Center, a growing community hospital in Waconia. Enjoy the best of all worlds, from rural to suburban in one of our 4 sites, and the camaraderie and support found in our group of family physicians, internists, pediatricians, OB/GYNs, and surgeons.

Family physicians with an interest in obstetrics preferred.

CONTACT: Sandra Beulke, MD
PHONE: 952-442-4461
EMAIL: administration@lakeviewclinic.com
WEB www.lakeviewclinic.com

WHERE A LANDSCAPE OF OPPORTUNITIES AWAITS

PHYSICIANS

Gundersen Health System is a physician led, integrated healthcare system employing over 450 physicians. Based in La Crosse, Wis., our mission is to distinguish ourselves through excellence in patient care, education, research and improved health in the communities we serve.

Currently seeking BC/BE physicians in these areas and more:
- Family Medicine
- Neurology
- Emergency Medicine
- Dermatology
- Psychiatry
- Internal Medicine

Gundersen offers generously loan forgiveness, competitive salary, excellent pension, and more. Most importantly, you will find a rewarding practice and an excellent quality of life.

Cathy Mooney (608)775-3637
camooney@gundersenhealth.org
gundersenhealth.org/MedCareers

GUNDERSEN HEALTH SYSTEM
La Crosse, Wisconsin

SEPTEMBER 2013 | MINNESOTA MEDICINE | 55
Family Medicine

St. Cloud/Sartell, MN

We are actively recruiting exceptional full-time BE/BC Family Medicine physicians to join our primary care team at the HealthPartners Central Minnesota Clinics - Sartell. This is an out-patient clinical position. Previous electronic medical record experience is helpful, but not required. We use the Epic medical record system in all of our clinics and admitting hospitals.

Our current primary care team includes family medicine, adult medicine, OB/GYN and pediatrics. Several of our specialty services are also available onsite. Our Sartell clinic is located just one hour north of the Twin Cities and offers a dynamic lifestyle in a growing community with traditional appeal.

HealthPartners Medical Group continues to receive nationally recognized clinical performance and quality awards. We offer a competitive compensation and benefit package, paid malpractice and a commitment to providing exceptional patient-centered care.

Apply online at healthpartners.jobs or contact diane.m.collins@healthpartners.com. Call Diane at 952-883-5453; toll-free: 800-472-4695 x3. EOE

heathpartners.com

Are you an Emergency Room Physician Looking for Leisure Work Hours?

- Casual weekend or evening shift coverage
- Great southern Minnesota ED
- Choose from 12- or 24-hour shifts
- Competitive rates
- Paid malpractice

Our passion is quality coverage and what drives that is the freedom our locums have.

TOLL FREE: 1-800-876-7171
PHONE: 763-682-5906
FAX: 763-684-0243
EMAIL: Michelle@whitesellmedstaff.com
WEB: www.WhitesellMedStaff.com

Practice Medicine. Perfect Your Lifestyle.

Live in the relaxed lake country of Mille Lacs and practice medicine where you will make a difference.

We’re looking for a Family Physician to join us at Mille Lacs Health System in Onamia, Minnesota.

Loan forgiveness options – J-1Visas considered.

Contact: Fern Gershbone: fgershone@mlhealth.org or Dr. Tom Bracken: tbracken@mlhealth.org

Mille Lacs Health System
Caring for body, mind and spirit.
Onamia, MN • mlhealth.org • 877-535-3154
7 FAMILY PHYSICIANS • 9 PAs • CRITICAL ACCESS HOSPITAL
ER STAFFED 24/7 • ATTACHED GERIATRIC UNIT & LTC FACILITY • 4 CLINICS

Practice well, Live well
in Minnesota’s lakes country

Lake Region Healthcare is located in a picturesque, rural, and family-friendly setting in Minnesota’s lakes country. We aim to be the area’s preeminent regional healthcare partner.

We are the largest multi-specialty medical group in west central Minnesota; our award-winning patient care sets us apart from other regional health care groups.

For more information, contact John D. Peterson jdpeterson@lrhc.org • (218) 736-8090
An equal opportunity employer
www.lrhc.org
The Alexandria Clinic, P.A. is a multi-specialty group practice. We are located two hours west of the Twin Cities on I-94 in the heart of Lakes Country. Named one of the Top Ten Small Towns in the Country by livability.com, Alexandria is home to a service area approaching 100,000 people and over 1,000 growing businesses.

We’re easy to get to and hard to leave!

Employment Opportunities:
- Emergency Room Physicians
- OB/Gyn
- ENT
- Oncology
- Dermatology
- Neurology
- Rheumatology
- Family Practice

For more information, contact:
Alexandria Clinic
Attn: Tim Hunt, Administrator
610-30th Ave W,
Alexandria, MN 56308
Phone: (320) 763-2540
email: thunt@alexclinic.com
www.alexclinic.com

Trusted Care. For Generations.

Live in a Beautiful Minnesota Resort Community

An immediate opportunity is available for a BC/BE orthopedic surgeon in Bemidji, MN. Join our 3 existing board certified orthopedic surgeons in this beautiful lakes community. Enjoy practicing in a new Orthopedic & Sports Medicine Center, opening spring 2013 and serving a region of 100,000.

Live and work in a community that offers exceptional schools, a state university with NCAA Division I hockey and community symphony and orchestra. With over 500 miles of trails and 400 surrounding lakes, this active community was ranked a “Top Town” by Outdoor Life Magazine. Enjoy a fulfilling lifestyle and rewarding career. To learn more about this excellent practice opportunity contact:

Celia Beck, Physician Recruiter
Phone: 218-333-5056
Fax: 218-333-5360
Celia.Beck@sanfordhealth.org

Here to care

At Allina Health, we’re here to care, guide, inspire and comfort the millions of patients we see each year at our 90+ clinics, 11 hospitals and through a wide variety of specialty care services throughout Minnesota and western Wisconsin. We care for our employees by providing rewarding work, flexible schedules and competitive benefits in an environment where passionate people thrive and excel.

Make a difference. Join our award-winning team.

Madalyn Dosch,
Physician Recruitment Services
Toll-free: 1-800-248-4921
Fax: 612-262-4163
Madalyn.Dosch@allina.com
allinahealth.org/careers

For additional information, please contact:
Kari Bredberg, Physician Recruitment
karib@acmc.com, 320-231-6366
Julayne Mayer, Physician Recruitment
mayerj@acmc.com, 320-231-5052

ACMC
Affiliated Community Medical Centers
Multi Specialty Health Network

The perfect match of career and lifestyle.

Affiliated Community Medical Centers is a physician owned multi-specialty group with 11 affiliated sites located in western and southwestern Minnesota. ACMC is the perfect match for healthcare providers who are looking for an exceptional practice opportunity and a high quality of life. Current opportunities available for BE/BC physicians in the following specialties:

- ENT
- Family Medicine
- Hospitalist
- Infectious Disease
- Internal Medicine
- Med/Peds Hospitalist
- Oncology
- Ophthalmology
- Orthopedic Surgery
- Outpatient Internist/ Geriatrician
- Pediatrics
- Psychiatry
- Pulmonary/Critical Care
- Rheumatology
- Urologist

For additional information, please contact:
Kari Bredberg, Physician Recruitment
karib@acmc.com, 320-231-6366
Julayne Mayer, Physician Recruitment
mayerj@acmc.com, 320-231-5052

ACMC
Fairview Health Services
Opportunities to fit your life

Fairview Health Services seeks physicians to improve the health of the communities we serve. We have a variety of opportunities that allow you to focus on innovative and quality care. Shape your practice to fit your life as a part of our nationally recognized, patient-centered, evidence-based care team. Whether your focus is work-life balance or participating in clinical quality initiatives, we have an opportunity that is right for you:

- Dermatology
- Emergency Medicine
- Family Medicine
- General Surgery
- Geriatric Medicine
- Hospitalist
- Internal Medicine
- Med/Peds
- Ob/Gyn
- Palliative
- Pediatrics
- Psychiatry
- Urgent Care

Visit fairview.org/physicians to explore our current opportunities, then apply online, call 800-842-6469 or e-mail recruit1@fairview.org.

Sorry, no J1 opportunities.

Urgent Care

We have part-time and on-call positions available at a variety of Twin Cities’ metro area HealthPartners Clinics. We will be opening a new Urgent Care clinic in Hugo, MN in the spring of 2013! Evening and weekend shifts are currently available. We are seeking BC/BE full-range family medicine and internal medicine pediatric (Med-Peds) physicians. We offer a competitive salary and paid malpractice.

For consideration, apply online at healthpartners.jobs and follow the Search Physician Careers link to view our Urgent Care opportunities. For more information, please contact diane.m.collins@healthpartners.com or call Diane at: 952-883-5453; toll-free: 1-800-472-4695 x3. EOE

Advertise in

Contact JOCELYN COX at 612.623.2880 or jcox@mnmed.org
Here to care

Join a renowned, trend-setting healthcare organization in the Minneapolis-St. Paul metro area. Our Urgent Care team is seeking BC/BE family medicine, internal medicine-pediatric, or emergency medicine physicians to provide medical care on a walk-in basis. We have part-time and casual shift options: M-F 3:00 -10:00 pm and Sat/Sun 9:00 am - 5:00 pm. We offer eight convenient locations, competitive salary, and benefits including malpractice.

Make a difference.
Join our award-winning Urgent Care team.

Madalyn Dosch, 
Physician Recruitment Services 
Toll-free: 1-800-248-4921 
Fax: 612-262-4163 
Madalyn.Dosch@allina.com 
allinahealth.org/careers

In the heart of the Cuyuna Lakes region of Minnesota, the medical campus in Crosby includes Cuyuna Regional Medical Center, a critical access hospital and clinic offering superb new facilities with the latest medical technologies. Outdoor activities abound, and with the Twin Cities and Duluth area just a short two hour drive away, you can experience the perfect balance of recreational and cultural activities. Enhance your professional life in an environment that provides exciting practice opportunities in a beautiful Northwoods setting. The Cuyuna Lakes region welcomes you.

Practice where you Play

Join the 100+ physician, multi-specialty group practice in the picturesque, resort community of Bemidji, Minnesota.

Currently seeking BC/BE physicians in the following specialties:

- Critical Care Medicine
- Dermatology
- Emergency Medicine
- ENT
- Family Medicine
- Family Medicine Bagley, MN
- Family Medicine Walk-In Clinic
- Hospitalist
- Internal Medicine
- Medical Oncology
- Neurology
- Occupational Medicine
- Ophthalmology
- Optometrist
- Orthopedic Surgery
- P&M&R
- Pain Management
- Pediatrics
- Pulmonology
- Rheumatology
- Urology
- Vascular Surgery

Competitive compensation and comprehensive benefits.
Celia Beck, Physician Recruiter 
Celia.Beck@sanfordhealth.org 
Phone: (218) 333-5056 
Fax: (218) 333-5360 
www.sanfordhealth.org

In the heart of the Cuyuna Lakes region of Minnesota, the medical campus in Crosby includes Cuyuna Regional Medical Center, a critical access hospital and clinic offering superb new facilities with the latest medical technologies. Outdoor activities abound, and with the Twin Cities and Duluth area just a short two hour drive away, you can experience the perfect balance of recreational and cultural activities. Enhance your professional life in an environment that provides exciting practice opportunities in a beautiful Northwoods setting. The Cuyuna Lakes region welcomes you.

Practice where you Play

Join the 100+ physician, multi-specialty group practice in the picturesque, resort community of Bemidji, Minnesota.

Currently seeking BC/BE physicians in the following specialties:

- Critical Care Medicine
- Dermatology
- Emergency Medicine
- ENT
- Family Medicine
- Family Medicine Bagley, MN
- Family Medicine Walk-In Clinic
- Hospitalist
- Internal Medicine
- Medical Oncology
- Neurology
- Occupational Medicine
- Ophthalmology
- Optometrist
- Orthopedic Surgery
- P&M&R
- Pain Management
- Pediatrics
- Pulmonology
- Rheumatology
- Urology
- Vascular Surgery

Competitive compensation and comprehensive benefits.
Celia Beck, Physician Recruiter 
Celia.Beck@sanfordhealth.org 
Phone: (218) 333-5056 
Fax: (218) 333-5360 
www.sanfordhealth.org

Opportunities available in the following specialty:

Dermatology
Southeast Clinic
Family Medicine
Cannon Falls Clinic
Pine Island Clinic
Hospitalist
Rochester Hospital
Internal Medicine
Southeast Clinic

Send CV to:
Olmsted Medical Center Administration/Clinician Recruitment
102 Elton Hills Drive NW
Rochester, MN 55901
email: dcardille@olmmed.org
Phone: 507.529.6748 
Fax: 507.529.6622 
EOE

www.olmstedmedicalcenter.org
One year ago, I made the switch from one electronic health record (EHR) system to another. I had been using the old EHR for nearly nine years and had grown comfortable with it. Although it wasn’t perfect and needed some serious upgrades, it got the job done and I knew its limitations. But the system we were using was different from the one our partner hospital was using. It no longer made sense to continue with two different EHRs. We had to be on the same electronic page.

My clinic was among the last cluster of clinics in our group to make the switch. Although theoretically many of the glitches and kinks had been worked out of the system before we made the change, we still heard grumbling about the difficult, painful process of going from the old EHR system to the new one. Despite that, I went into the process with an open mind.

Last August, I attended my first instructional session on the new system. From the moment I logged on and read that I was “jumping to hyperspace,” my open mind narrowed. When my homepage popped up for the first time, I stared at the screen. My eyes darted from three rows of multicolored tabs at the top to more tabs and columns of words in a small font size along the left-hand side. I tried to make sense of this visual mess, but there was no logical place for my eyes to fall.

As we started interacting with the system (ordering lab tests, documenting encounters), it became clear there were multiple ways of doing the same thing. Nothing seemed intuitive or logical. My frustration and cynicism grew. I didn’t want to dislike (or hate) the new system, despite everything I’d heard, but I began to resent it—deeply. It felt like I was in an arranged marriage with no hope of learning to love my new life-partner. I was rapidly falling into a kind of e-depression.

A year later, I’ve made peace with this system. For a guy who really doesn’t know how to type quickly or correctly (I regret blowing off that summer school typing class), I’ve developed some finger memory. I know where to look, what to click, how to code and link and task and review. But it’s still painful, and I spend much more time on my computer than before—a common complaint, regardless of which EHR system one uses. Caring for patients, it seems, has become a combination of court reporting (with someone constantly typing at a keyboard or clicking a mouse during an encounter) and the carnival game Whac-A-Mole (where the object is to hit a “mole” on the head with a hammer every time it pops up through a random hole—or in our case, clicking off tasks as they constantly and randomly appear in our virtual in-baskets).

It felt like I was in an arranged marriage with no hope of learning to love my new life-partner. I was rapidly falling into a kind of e-depression.

There has to be a better way. Surely someone somewhere is capable of creating a method for documenting and coding and billing that isn’t so cumbersome and time-consuming. Which leads me to ask: Where is the Steve Jobs of the EHR world? Where is that person who knows what we want before we know what we want? That person who understands simplicity and elegance and knows where to cut and pare? That person who’s maniacal about doing the right thing—and getting it right before a product is released? That person who knows the value of combining art and science into the DNA of a product or company, creating something both useful and beautiful? I have to believe—I want to believe—that someone somewhere is cooking up something insanely great, that someone understands what it means—what it truly means—to “think different” in the world of electronic health records. MM

Jon Hallberg is medical director of University of Minnesota Physicians’ Mill City Clinic in Minneapolis.
Relax.
Discover solutions that put you at ease.

At MMIC, we believe patients get the best care when their doctors feel calm and confident. So we put our energy into creating risk solutions designed to eliminate worry. Solutions such as medical liability insurance, physician well-being, health IT support and patient safety consulting. It’s our own quiet way of revolutionizing health care.

To join the Peace of Mind Movement, give us a call at 1.800.328.5532 or visit MMICgroup.com.
Generations of physicians have trusted St. Paul Radiology to care for their patients who need imaging and radiology services. With six conveniently located Outpatient Imaging Centers and onsite radiologists at the area’s leading hospitals, St. Paul Radiology provides a full range of diagnostic imaging, consultation, and interventional radiology services on an inpatient, outpatient and emergency basis - 24/7.

Continuity of care and a commitment to responsible imaging are inherent in our approach to patient care. And you can rely on us for careful evaluations from highly trained specialists, with faster interpretations that are right the first time. A referral to St. Paul Radiology Outpatient Imaging Centers means quality care for your patients.

It’s value you can count on.

See what our patients say at OurPatientsSpeak.com