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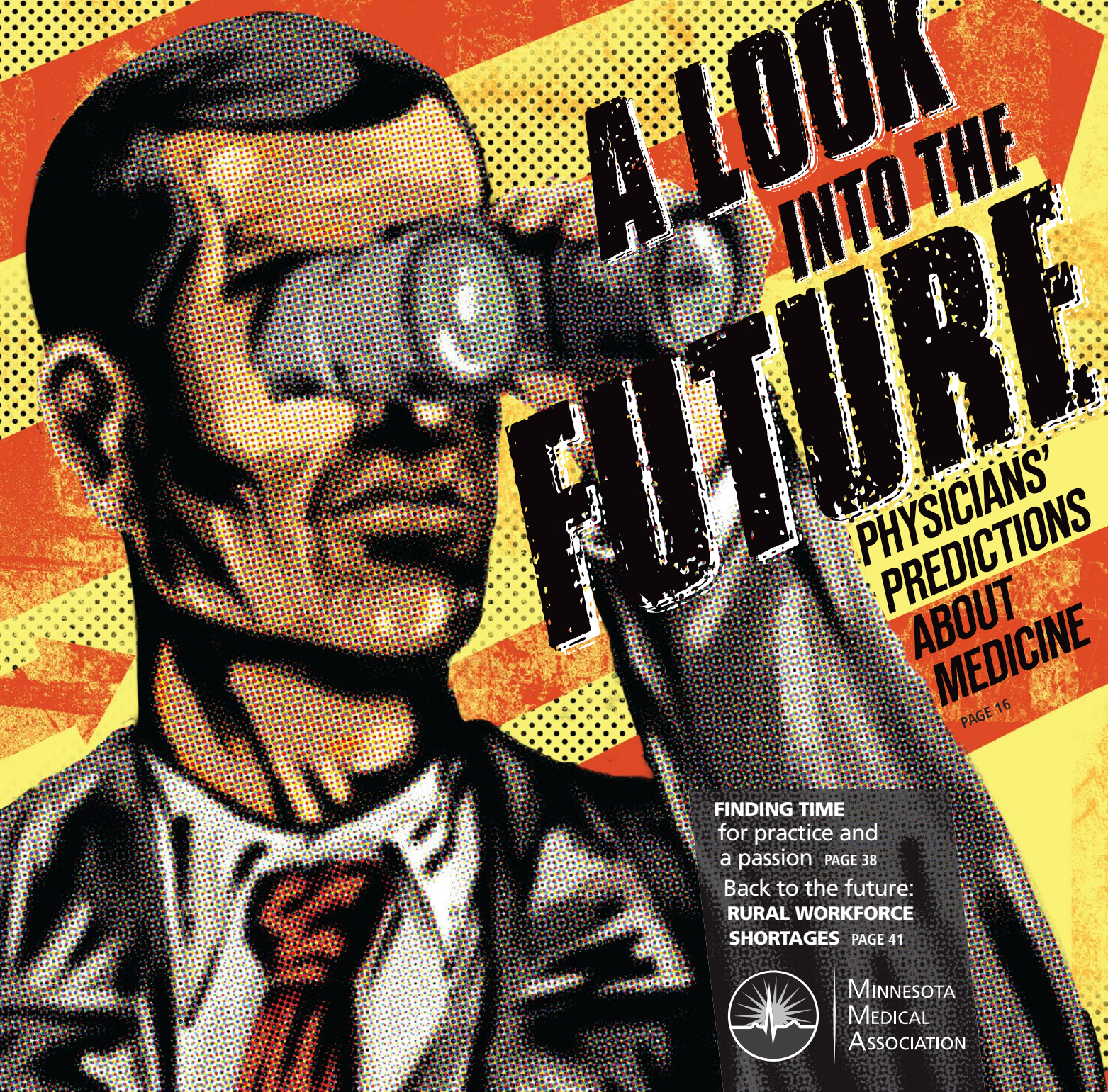

A LOOK INTO THE FUTURE

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Minnesota Medical Association

Facing leukemia can be a dark time for any family. Just ask Cecilia and her parents. But doctors at University of Minnesota Amplatz Children's Hospital were determined to keep her future bright. They decided she needed more than chemo, she needed a transplant.

FROM DIAGNOSIS TO TRANSPLANT, CECILIA'S LIGHT NEVER DIMMED.

So their world-renowned cancer and blood and marrow transplant teams got to work delivering the solution that would not only stop her cancer, but restore her radiant spirit. Come see how we discover the treatments and illuminate the cures that other hospitals follow @ **uofmchildrenshospital.org/curingcancer.**

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-0.8% to -1.5%*

MAY PROVIDE ADDITIONAL BENEFIT OF WEIGHT LOSS†

For adult patients with type 2 diabetes, Victoza® offers these benefits and more.
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*Victoza® 1.2 mg and 1.8 mg when used alone or in combination with OADs.

†**Victoza® is not indicated for the management of obesity, and weight change was a secondary end point in clinical trials.**

VICTOZA®
liraglutide (rDNA origin) injection

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.

There is limited data in patients with renal or hepatic impairment.

Please see brief summary of Prescribing Information on adjacent page.

0513-00015590-1 June 2013

Victoza® (liraglutide [rDNA origin] injection)
Rx Only
BRIEF SUMMARY. Please consult package insert for full prescribing information.

WARNING: RISK OF THYROID C-CELL TUMORS: 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 *[see Contraindications and Warnings and Precautions].*

INDICATIONS AND USAGE: Victoza® is indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus. **Important Limitations of Use:** 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. The concurrent use of Victoza® and prandial insulin has not been studied.

CONTRAINDICATIONS: Do not use in patients with a personal or family history of medullary thyroid carcinoma (MTC) or in patients with Multiple Endocrine Neoplasia syndrome type 2 (MEN 2). Do not use in patients with a prior serious hypersensitivity reaction to Victoza® or to any of the product components.

WARNINGS AND PRECAUTIONS: Risk of Thyroid C-cell Tumors: Liraglutide 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. A statistically significant increase in cancer was observed in rats receiving liraglutide at 8-times clinical exposure compared to controls. It is unknown whether Victoza® will cause thyroid C-cell tumors, including medullary thyroid carcinoma (MTC), in humans, as the human relevance of liraglutide-induced rodent thyroid C-cell tumors could not be determined by clinical or nonclinical studies. In the clinical trials, there have been 6 reported cases of thyroid C-cell hyperplasia among Victoza®-treated patients and 2 cases in comparator-treated patients (1.3 vs. 1.0 cases per 1000 patient-years). One comparator-treated patient with MTC had pre-treatment serum calcitonin concentrations >1000 ng/L suggesting pre-existing disease. All of these cases were diagnosed after thyroidectomy, which was prompted by abnormal results on routine, protocol-specified measurements of serum calcitonin. Five of the six Victoza®-treated patients had elevated calcitonin concentrations at baseline and throughout the trial. One Victoza® and one non-Victoza®-treated patient developed elevated calcitonin concentrations while on treatment. Calcitonin, a biological marker of MTC, was measured throughout the clinical development program. The serum calcitonin assay used in the Victoza® clinical trials had a lower limit of quantification (LLOQ) of 0.7 ng/L and the upper limit of the reference range was 5.0 ng/L for women and 8.4 ng/L for men. At Weeks 26 and 52 in the clinical trials, adjusted mean serum calcitonin concentrations were higher in Victoza®-treated patients compared to placebo-treated patients but not compared to patients receiving active comparator. At these timepoints, the adjusted mean serum calcitonin values (~1.0 ng/L) were just above the LLOQ with between-group differences in adjusted mean serum calcitonin values of approximately 0.1 ng/L or less. Among patients with pre-treatment serum calcitonin below the upper limit of the reference range, shifts to above the upper limit of the reference range which persisted in subsequent measurements occurred most frequently among patients treated with Victoza® 1.8 mg/day. In trials with on-treatment serum calcitonin measurements out to 5-6 months, 1.9% of patients treated with Victoza® 1.8 mg/day developed new and persistent calcitonin elevations above the upper limit of the reference range compared to 0.8-1.1% of patients treated with control medication or the 0.6 and 1.2 mg doses of Victoza®. In trials with on-treatment serum calcitonin measurements out to 12 months, 1.3% of patients treated with Victoza® 1.8 mg/day had new and persistent elevations of calcitonin from below or within the reference range to above the upper limit of the reference range, compared to 0.6%, 0% and 1.0% of patients treated with Victoza® 1.2 mg, placebo and active control, respectively. Otherwise, Victoza® did not produce consistent dose-dependent or time-dependent increases in serum calcitonin. Patients with MTC usually have calcitonin values >50 ng/L. In Victoza® clinical trials, among patients with pre-treatment serum calcitonin <50 ng/L, one Victoza®-treated patient and no comparator-treated patients developed serum calcitonin >50 ng/L. The Victoza®-treated patient who developed serum calcitonin >50 ng/L had an elevated pre-treatment serum calcitonin of 10.7 ng/L that increased to 30.7 ng/L at Week 12 and 53.5 ng/L at the end of the 6-month trial. Follow-up serum calcitonin was 22.3 ng/L more than 2.5 years after the last dose of Victoza®. The largest increase in serum calcitonin in a comparator-treated patient was seen with glimepiride in a patient whose serum calcitonin increased from 19.3 ng/L at baseline to 44.8 ng/L at Week 65 and 38.1 ng/L at Week 104. Among patients who began with serum calcitonin <20 ng/L, calcitonin elevations to >20 ng/L occurred in 0.7% of Victoza®-treated patients, 0.3% of placebo-treated patients, and 0.5% of active-comparator-treated patients, with an incidence of 1.1% among patients treated with 1.8 mg/day of Victoza®. The clinical significance of these findings is unknown. Counsel patients regarding the risk for MTC and the symptoms of thyroid tumors (e.g. a mass in the neck, dysphagia, dyspnea or persistent hoarseness). It is unknown whether monitoring with serum calcitonin or thyroid ultrasound will mitigate the potential risk of MTC, and such monitoring may increase the risk of unnecessary procedures, due to low test specificity for serum calcitonin and a high background incidence of thyroid disease. Patients with thyroid nodules noted on physical examination or neck imaging obtained for other reasons should be referred to an endocrinologist for further evaluation. Although routine monitoring of serum calcitonin is of uncertain value in patients treated with Victoza®, if serum calcitonin is measured and found to be elevated, the patient should be referred to an endocrinologist for further evaluation. **Pancreatitis: Based on spontaneous postmarketing reports, acute pancreatitis, including fatal and non-fatal hemorrhagic or necrotizing pancreatitis, has been observed in patients treated with Victoza®. After initiation of Victoza®, observe patients carefully for signs and symptoms of pancreatitis (including persistent severe abdominal pain, sometimes radiating to the back and which may or may not be accompanied by vomiting). If pancreatitis is suspected, Victoza® should promptly be discontinued and appropriate management should be initiated. If pancreatitis is confirmed, Victoza® should not be restarted. Consider antidiabetic therapies other than Victoza® in patients with a history of pancreatitis.** In clinical trials of Victoza®, there have been 13 cases of pancreatitis among Victoza®-treated patients and 1 case in a comparator (glimepiride) treated patient (2.7 vs. 0.5 cases per 1000 patient-years). Nine of the 13 cases with Victoza® were reported as acute pancreatitis and four were reported as chronic pancreatitis. In one case in a Victoza®-treated patient, pancreatitis, with necrosis, was observed and led to death; however clinical causality could not be established. Some patients had other risk factors for pancreatitis, such as a history of cholelithiasis or alcohol abuse. **Use with Medications Known to Cause Hypoglycemia:** Patients receiving Victoza® in combination with an insulin secretagogue (e.g., sulfonylurea) or insulin may have an increased risk of hypoglycemia. The risk of hypoglycemia may be lowered by a reduction in the dose of sulfonylurea (or other concomitantly administered insulin secretagogues) or insulin **Renal Impairment:** Victoza® has not been found to be directly nephrotoxic in animal studies or clinical trials. 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 known underlying renal disease. A majority of the reported events occurred in patients who had experienced nausea, vomiting, diarrhea, or dehydration. Some of the reported events occurred in patients receiving one or more medications known to affect renal function or hydration status. Altered renal function has been reversed in many of the reported cases with supportive treatment and discontinuation of potentially causative agents, including Victoza®. Use caution when initiating or escalating doses of Victoza® in patients with renal impairment. **Hypersensitivity Reactions:** There have been postmarketing reports of serious hypersensitivity reactions (e.g., anaphylactic reactions and angioedema) in patients treated with Victoza®. If a hypersensitivity reaction occurs, the patient should discontinue Victoza® and other suspect medications and promptly seek medical advice. Angioedema has also been reported with other GLP-1 receptor agonists. Use caution in a patient with a history of angioedema with another GLP-1 receptor agonist because it is unknown whether such patients will be predisposed to angioedema with Victoza®. **Macrovascular Outcomes:** There have been no clinical studies establishing conclusive evidence of macrovascular risk 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 daily, Victoza® 1.8 mg daily, and glimepiride 8 mg daily; A double-blind 26 week add-on to metformin trial compared Victoza® 0.6 mg once-daily, Victoza® 1.2 mg once-daily, Victoza® 1.8 mg once-daily, placebo, and glimepiride 4 mg once-daily; A double-blind 26 week add-on to glimepiride trial compared Victoza® 0.6 mg daily, Victoza® 1.2 mg once-daily, Victoza® 1.8 mg once-daily, placebo, and rosiglitazone 4 mg once-daily; A 26 week add-on to metformin + glimepiride trial, compared double-blind Victoza® 1.8 mg once-daily, double-blind placebo, and open-label insulin glargine once-daily; A double-blind 26-week add-on to metformin + rosiglitazone trial compared Victoza® 1.2 mg once-daily, Victoza® 1.8 mg once-daily and placebo; An open-label 26-week add-on to metformin and/or sulfonylurea trial compared Victoza® 1.8 mg once-daily and exenatide 10 mcg twice-daily; An open-label 26-week add-on to metformin trial compared Victoza® 1.2 mg once-daily, Victoza® 1.8 mg once-daily, and sitagliptin 100 mg once-daily; An open-label 26-week trial compared insulin detemir as add-on to Victoza® 1.8 mg + metformin to continued treatment with Victoza® + metformin alone. *Withdrawals:* The incidence of withdrawal due to adverse events was 7.8% for Victoza®-treated patients and 3.4% for comparator-treated patients in the five double-blind controlled trials of 26 weeks duration or longer. This difference was driven by withdrawals due to gastrointestinal adverse reactions, which occurred in 5.0% of Victoza®-treated patients and 0.5% of comparator-treated patients. In these five trials, the most common adverse reactions leading to withdrawal for Victoza®-treated patients were nausea (2.8% versus 0% for comparator) and vomiting (1.5% versus 0.1% for comparator). Withdrawal due to gastrointestinal adverse events mainly occurred during the first 2-3 months of the trials. *Common adverse reactions:* Tables 1, 2, 3 and 4 summarize common adverse reactions (hypoglycemia is discussed separately) reported in seven of the eight controlled trials of 26 weeks duration or longer. Most of these adverse reactions were gastrointestinal in nature. In the five double-blind clinical trials of 26 weeks duration or longer, gastrointestinal adverse reactions were reported in 41% of Victoza®-treated patients and were dose-related. Gastrointestinal adverse reactions occurred in 17% of comparator-treated patients. Common adverse reactions that occurred at a higher incidence among Victoza®-treated patients included nausea, vomiting, diarrhea, dyspepsia and constipation. In the five double-blind and three open-label clinical trials of 26 weeks duration or longer, the percentage of patients who reported nausea declined over time. In the five double-blind trials approximately 13% of Victoza®-treated patients and 2% of comparator-treated patients reported nausea during the first 2 weeks of treatment. In the 26-week open-label trial comparing Victoza® to exenatide, both in combination with metformin and/or sulfonylurea, gastrointestinal adverse reactions were reported at a similar incidence in the Victoza® and exenatide treatment groups (Table 3). In the 26-week open-label trial comparing Victoza® 1.2 mg, Victoza® 1.8 mg and sitagliptin 100 mg, all in combination with metformin, gastrointestinal adverse reactions were reported at a higher incidence with Victoza® than sitagliptin (Table 4). In the remaining 26-week trial, all patients received Victoza® 1.8 mg + metformin during a 12-week run-in period. During the run-in period, 167 patients (17% of enrolled total) withdrew from the trial: 76 (46% of withdrawals) of these patients doing so because of gastrointestinal adverse reactions and 15 (9% of withdrawals) doing so due to other adverse events. Only those patients who completed the run-in period with inadequate glycemic control were randomized to 26 weeks of add-on therapy with insulin detemir or continued, unchanged treatment with Victoza® 1.8 mg + metformin. During this randomized 26-week period, diarrhea was the only adverse reaction reported in ≥5% of patients treated with Victoza® 1.8 mg + metformin + insulin detemir (11.7%) and greater than in patients treated with Victoza® 1.8 mg and metformin alone (6.9%).

Table 1: Adverse reactions reported in ≥5% of Victoza®-treated patients in a 52-week monotherapy trial

	All Victoza® N = 497	Glimepiride N = 248
Adverse Reaction	(%)	(%)
Nausea	28.4	8.5
Diarrhea	17.1	8.9
Vomiting	10.9	3.6
Constipation	9.9	4.8
Headache	9.1	9.3

Table 2: Adverse reactions reported in ≥5% of Victoza®-treated patients and occurring more frequently with Victoza® compared to placebo: 26-week combination therapy trials

Add-on to Metformin Trial			
	All Victoza® + Metformin N = 724	Placebo + Metformin N = 121	Glimepiride + Metformin N = 242
Adverse Reaction	(%)	(%)	(%)
Nausea	15.2	4.1	3.3
Diarrhea	10.9	4.1	3.7
Headache	9.0	6.6	9.5
Vomiting	6.5	0.8	0.4
Add-on to Glimepiride Trial			
	All Victoza® + Glimepiride N = 695	Placebo + Glimepiride N = 114	Rosiglitazone + Glimepiride N = 231
Adverse Reaction	(%)	(%)	(%)
Nausea	7.5	1.8	2.6
Diarrhea	7.2	1.8	2.2

Constipation	5.3	0.9	1.7
Dyspepsia	5.2	0.9	2.6
Add-on to Metformin + Glimepiride			
	Victoza® 1.8 + Metformin + Glimepiride N = 230	Placebo + Metformin + Glimepiride N = 114	Glargine + Metformin + Glimepiride N = 232
Adverse Reaction	(%)	(%)	(%)
Nausea	13.9	3.5	1.3
Diarrhea	10.0	5.3	1.3
Headache	9.6	7.9	5.6
Dyspepsia	6.5	0.9	1.7
Vomiting	6.5	3.5	0.4
Add-on to Metformin + Rosiglitazone			
	All Victoza® + Metformin + Rosiglitazone N = 355	Placebo + Metformin + Rosiglitazone N = 175	
Adverse Reaction	(%)	(%)	
Nausea	34.6	8.6	
Diarrhea	14.1	6.3	
Vomiting	12.4	2.9	
Headache	8.2	4.6	
Constipation	5.1	1.1	

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

	Victoza® 1.8 mg once daily + metformin and/or sulfonylurea N = 235	**Exenatide 10 mcg twice daily + metformin and/or sulfonylurea** N = 232
Adverse Reaction	(%)	(%)
Nausea	25.5	28.0
Diarrhea	12.3	12.1
Headache	8.9	10.3
Dyspepsia	8.9	4.7
Vomiting	6.0	9.9
Constipation	5.1	2.6

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

	All Victoza® + metformin N = 439	**Sitagliptin 100 mg/day + metformin** N = 219
Adverse Reaction	(%)	(%)
Nausea	23.9	4.6
Headache	10.3	10.0
Diarrhea	9.3	4.6
Vomiting	8.7	4.1

Immunogenicity: Consistent with the potentially immunogenic properties of protein and peptide pharmaceuticals, patients treated with Victoza® may develop anti-liraglutide antibodies. Approximately 50-70% of Victoza®-treated patients in the five double-blind clinical trials of 26 weeks duration or longer were tested for the presence of anti-liraglutide antibodies at the end of treatment. Low titers (concentrations not requiring dilution of serum) of anti-liraglutide antibodies were detected in 8.6% of these Victoza®-treated patients. Sampling was not performed uniformly across all patients in the clinical trials, and this may have resulted in an underestimate of the actual percentage of patients who developed antibodies. Cross-reacting anti-liraglutide antibodies to native glucagon-like peptide-1 (GLP-1) occurred in 6.9% of the Victoza®-treated patients in the double-blind 52-week monotherapy trial and in 4.8% of the Victoza®-treated patients in the double-blind 26-week add-on combination therapy trials. These cross-reacting antibodies were not tested for neutralizing effect against native GLP-1, and thus the potential for clinically significant neutralization of native GLP-1 was not assessed. Antibodies that had a neutralizing effect on liraglutide in an *in vitro* assay occurred in 2.3% of the Victoza®-treated patients in the double-blind 52-week monotherapy trial and in 1.0% of the Victoza®-treated patients in the double-blind 26-week add-on combination therapy trials. Among Victoza®-treated patients who developed anti-liraglutide antibodies, the most common category of adverse events was that of infections, which occurred among 40% of these patients compared to 36%, 34% and 35% of antibody-negative Victoza®-treated, placebo-treated and active-control-treated patients, respectively. The specific infections which occurred with greater frequency among Victoza®-treated antibody-positive patients were primarily nonserious upper respiratory tract infections, which occurred among 11% of Victoza®-treated antibody-positive patients; and among 7%, 7% and 5% of antibody-negative Victoza®-treated, placebo-treated and active-control-treated patients, respectively. Among Victoza®-treated antibody-negative patients, the most common category of adverse events was that of gastrointestinal events, which occurred in 43%, 18% and 19% of antibody-negative Victoza®-treated, placebo-treated and active-control-treated patients, respectively. Antibody formation was not associated with reduced efficacy of Victoza® when comparing mean HbA_{1c} of all antibody-positive and all antibody-negative patients. However, the 3 patients with the highest titers of anti-liraglutide antibodies had no reduction in HbA_{1c} with Victoza® treatment. In the five double-blind clinical trials of Victoza®, events from a composite of adverse events potentially related to immunogenicity (e.g. urticaria, angioedema) occurred among 0.8% of Victoza®-treated patients and among 0.4% of comparator-treated patients. Urticaria accounted for approximately one-half of the events in this composite for Victoza®-treated patients. Patients who developed anti-liraglutide antibodies were not more likely to develop events from the immunogenicity events composite than were patients who did not develop anti-liraglutide antibodies. *Injection site reactions:* Injection site reactions (e.g., injection site rash, erythema) were reported in approximately 2% of Victoza®-treated patients in the five double-blind clinical trials of at least 26 weeks duration. Less than 0.2% of Victoza®-treated patients discontinued due to injection site reactions. *Papillary thyroid carcinoma:* In clinical trials of Victoza®, there were 7 reported cases of papillary thyroid carcinoma in patients treated with Victoza® and 1 case in a comparator-treated patient (1.5 vs. 0.5 cases per 1000 patient-years). Most of these papillary thyroid carcinomas were <1 cm in greatest diameter and were diagnosed in surgical pathology specimens after thyroidectomy prompted by findings on protocol-specified screening with serum calcitonin or thyroid ultrasound. *Hypoglycemia:* In the eight clinical trials of at least 26 weeks duration, hypoglycemia requiring the assistance of another person for treatment occurred in 11 Victoza®-treated patients (2.3 cases per 1000 patient-years) and in two exenatide-treated patients. Of these 11 Victoza®-treated patients, six patients were concomitantly using metformin and a sulfonylurea, one was concomitantly using a sulfonylurea, two were concomitantly using metformin (blood glucose values were 65 and 94 mg/dL) and two were using Victoza® as monotherapy (one of these patients was undergoing an intravenous glucose tolerance test and the other was receiving insulin as treatment during a hospital stay). For these two patients on Victoza® monotherapy, the insulin treatment was the likely explanation for the hypoglycemia. In the 26-week open-label trial comparing Victoza® to sitagliptin, 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

	Victoza® Treatment	**Active Comparator**	**Placebo Comparator**
Monotherapy	**Victoza®** (N = 497)	**Glimepiride** (N = 248)	**None**
Patient not able to self–treat	0	0	—
Patient able to self–treat	9.7 (0.24)	25.0 (1.66)	—
Not classified	1.2 (0.03)	2.4 (0.04)	—
Add-on to Metformin	**Victoza® + Metformin** (N = 724)	**Glimepiride + Metformin** (N = 242)	**Placebo + Metformin** (N = 121)
Patient not able to self–treat	0.1 (0.001)	0	0
Patient able to self–treat	3.6 (0.05)	22.3 (0.87)	2.5 (0.06)
Add-on to Victoza® + Metformin	**Insulin detemir + Victoza® + Metformin** (N = 163)	**Continued Victoza® + Metformin alone** (N = 158*)	**None**
Patient not able to self–treat	0	0	—
Patient able to self–treat	9.2 (0.29)	1.3 (0.03)	—
Add-on to Glimepiride	**Victoza® + Glimepiride** (N = 695)	**Rosiglitazone + Glimepiride** (N = 231)	**Placebo + Glimepiride** (N = 114)
Patient not able to self–treat	0.1 (0.003)	0	0
Patient able to self–treat	7.5 (0.38)	4.3 (0.12)	2.6 (0.17)
Not classified	0.9 (0.05)	0.9 (0.02)	0
Add-on to Metformin + Rosiglitazone	**Victoza® + Metformin + Rosiglitazone** (N = 355)	**None**	**Placebo + Metformin + Rosiglitazone** (N = 175)
Patient not able to self–treat	0	—	0
Patient able to self–treat	7.9 (0.49)	—	4.6 (0.15)
Not classified	0.6 (0.01)	—	1.1 (0.03)
Add-on to Metformin + Glimepiride	**Victoza® + Metformin + Glimepiride** (N = 230)	**Insulin glargine + Metformin + Glimepiride** (N = 232)	**Placebo + Metformin + Glimepiride** (N = 114)
Patient not able to self–treat	2.2 (0.06)	0	0
Patient able to self–treat	27.4 (1.16)	28.9 (1.29)	16.7 (0.95)
Not classified	0	1.7 (0.04)	0

*One patient is an outlier and was excluded due to 25 hypoglycemic episodes that the patient was able to self-treat. This patient had a history of frequent hypoglycemia prior to the study.

In a pooled analysis of clinical trials, the incidence rate (per 1,000 patient-years) for malignant neoplasms (based on investigator-reported events, medical history, pathology reports, and surgical reports from both blinded and open-label study periods) was 10.9 for Victoza®, 6.3 for placebo, and 7.2 for active comparator. After excluding papillary thyroid carcinoma events *[see Adverse Reactions]*, no particular cancer cell type predominated. Seven malignant neoplasm events were reported beyond 1 year of exposure to study medication, six events among Victoza®-treated patients (4 colon, 1 prostate and 1 nasopharyngeal), no events with placebo and one event with active comparator (colon). Causality has not been established. **Laboratory Tests:** In the five clinical trials of at least 26 weeks duration, mildly elevated serum bilirubin concentrations (elevations to no more than twice the upper limit of the reference range) occurred in 4.0% of Victoza®-treated patients, 2.1% of placebo-treated patients and 3.5% of active-comparator-treated patients. This finding was not accompanied by abnormalities in other liver tests. The significance of this isolated finding is unknown. **Vital signs:** Victoza® did not have adverse effects on blood pressure. Mean increases from baseline in heart rate of 2 to 3 beats per minute have been observed with Victoza® compared to placebo. The long-term clinical effects of the increase in pulse rate have not been established. **Post-Marketing Experience:** The following additional adverse reactions have been reported during post-approval use of Victoza®. Because these events are reported voluntarily from a population of uncertain size, it is generally not possible to reliably estimate their frequency or establish a causal relationship to drug exposure: Dehydration resulting from nausea, vomiting and diarrhea; Increased serum creatinine, acute renal failure or worsening of chronic renal failure, sometimes requiring hemodialysis; Angioedema and anaphylactic reactions; Allergic reactions: rash and pruritus; Acute pancreatitis, hemorrhagic and necrotizing pancreatitis sometimes resulting in death.

OVERDOSAGE: Overdoses have been reported in clinical trials and post-marketing use of Victoza®. Effects have included severe nausea and severe vomiting. In the event of overdosage, appropriate supportive treatment should be initiated according to the patient's clinical signs and symptoms.

More detailed information is available upon request.

For information about Victoza® contact: Novo Nordisk Inc., 800 Scudders Mill Road, Plainsboro, NJ 08536, 1–877-484-2869

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Victoza® is covered by US Patent Nos. 6,268,343, 6,458,924, 7,235,627, 8,114,833 and other patents pending. Victoza® Pen is covered by US Patent Nos. 6,004,297, RE 43,834, RE 41,956 and other patents pending.

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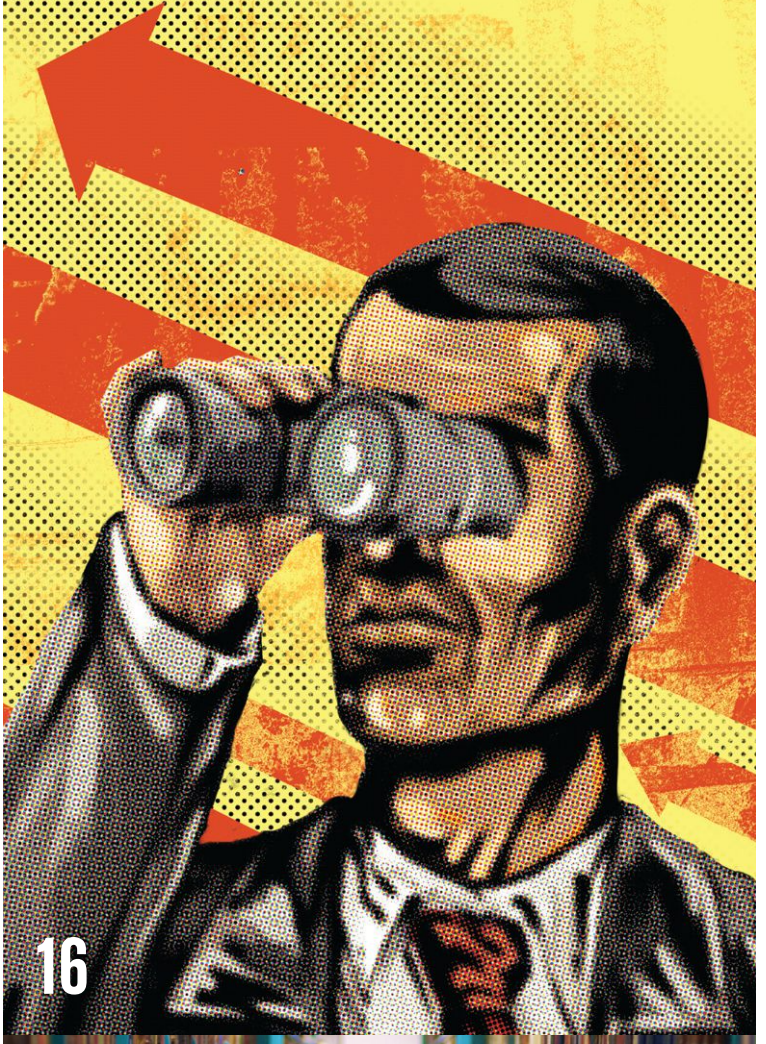

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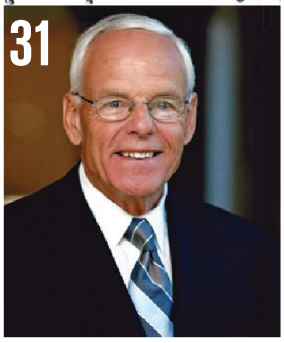

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PHOTO BY SCOTT WALKER

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

Distant dreams and fantastical futures

We view the past and we can't believe it was ever like that. We look into the future and we can't believe it will ever be like that.

On July 19, 1977, I hesitantly walked into a small office located in a distinctive "building on stilts" across from Fairview Southdale Hospital in Edina. The office had four exam rooms, a narrow waiting room with a long couch and a few chairs, and six employees, including one bookkeeper who doubled as an overseer and one billing person who processed charges by hand. The doctors wrote all notes in degrees of legibility that varied from the mostly readable to the hieroglyphic. The practice operated two offices, and the five internists I was joining went to three hospitals almost daily. As I eased into the practice, I spent my mornings driving an unconscionable number of miles to get to all the hospitals, seeing patients and schmoozing with other physicians to get "known."

Back then, hospitals were the hub of medical practice, housing patients for what now seem like interminable stays. Cataract patients stayed five days as did hernia patients. Myocardial infarctions stayed at least two weeks. Doctors were still admitting patients for "GI workups" that included a barium swallow and a barium enema. All this activity demanded a lot of hospitals, among them Metropolitan Medical Center, Deaconess, Mt. Sinai and Eitel—now tombstones in the graveyard of Minnesota medical history.

That hospital-based style of practice was possible not only because it was deemed acceptable but also because patients and insurance companies would pay for it. For most medical groups, any money that didn't flow directly from patients came from Medicare or insurance companies that paid "usual and customary" fees. Those halcyon days evaporated as insurance companies became HMOs and Medicare adopted DRGs. Suddenly, hospitals were financial black holes that patients needed to avoid. The length of stays plummeted, and physicians found ways to treat patients without admitting them.

Over the years, my group expanded and contracted. We moved offices, we enlarged offices, we shared offices, we closed offices. As hospitals shuttered and hospital practice slackened, we abandoned our freeway life and settled into a one-office, one-hospital practice. We stoically adapted to the managed care revolution and to corporate consolidation. What we didn't accommodate was the seismic change in hospital practice.

My group's demise really happened because of hospitals. At least one of my partners and most potential new partners emerging from residency no longer wanted to practice in both the office and the hospital. After my group shrank to a financially unsupportable size, we folded and I became an office-only doc. My peripatetic, hospital-hopping days now seem like a distant dream.

Some of the historic tales in this issue that highlights past and future seem like fantasies born of dream states—hospitals for "imbeciles," cleaning ladies stanching life-threatening hemorrhages. Equally fantastical are the predictions for hospitals that will feature outpatient coronary bypasses or clever robots saving lives.

We view the past and we can't believe it was ever like that. We look into the future and we can't believe it will ever be like that. Hospitals will always be with us, but there will be fewer of them and we may not recognize them as we drive past. **MM**

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Minnesota Medical Association

Rendering of what downtown Rochester may look like once it becomes a "Destination Medical Center."

COURTESY OF MAYO CLINIC

Will Minnesota be the center of the medical universe?

If press releases are our tea leaves, it appears that Minnesota is poised to become an even bigger player in health care than it is today—at least in terms of the infrastructure that supports innovation. Bearing names such as "destination medical center" and "gateway to biomedical discovery," projects announced or completed in 2013 sound promising, even futuristic.

Here are the details on a few of them:

- Mayo Clinic launched its $5 billion "Destination Medical Center" initiative that would allow it to expand and improve its Rochester campus in order to "secure and grow Minnesota's position as a global medical destination for decades to come." In May, lawmakers approved $585 million in public spending to pay for upgraded infrastructure in Rochester. Mayo plans to spend $3.5 billion and leverage $2 billion in private investments over the next 20 years for other improvements.
- Mayo announced in March the opening of the Mayo Clinic Business Accelerator at the Minnesota BioBusiness Center in Rochester. The accelerator will encourage the growth and development of health care-related businesses in the Rochester area.
- The University of Minnesota opened a new state-of-the-art medical devices laboratory in May. The 8,000-square-foot facility replaces a 5,000-square-foot laboratory that opened in 2008. The new Medical Devices Center will have a 3D virtual design lab, an imaging lab, an anatomy and physiology lab, mechanical and electronic fabrication labs, brainstorming rooms and more.
- The University of Minnesota opened the "Gateway to the Biomedical Discovery District," a new cancer and cardiovascular research facility in June. The building will house 20 to 25 investigators working on cardiac regeneration, cardiac development, muscular dystrophy, genomics, and the study of the chemical carcinogens as a cause of cancer, among other things. The building is the fifth to open in what the university calls its "Biomedical Discovery District."

Will life-changing breakthroughs come out of these facilities? Will they deliver on the promises reflected in their names and by their marketers? Only time will tell.

U of MN Med School picks new dean

Last month, University of Minnesota President Eric Kaler announced the appointment of pathologist and AIDS expert Jay Brooks Jackson, M.D., as dean of the Medical School and vice president for health sciences. Jackson, who will start his new job in February, is coming from Johns Hopkins University, where he served as director of pathology for the last dozen years. Under Jackson, that department rose from fifth to first nationwide in NIH funding.

Jackson has Minnesota roots. He did his residency and fellowship and served as an assistant professor in the department of laboratory medicine and pathology at the University of Minnesota. And he worked at the Minneapolis Veterans Affairs Medical Center, the American Red Cross in St. Paul and University of Minnesota Blood Bank during the 1980s.

"I believe Dr. Jackson is the right leader at the right time for our Medical School and Academic Health Center," Kaler wrote in a letter announcing the appointment. "He is an outstanding scientist, a strong clinician, a dedicated teacher and mentor, and a highly successful administrator. He also has the skills, the experience, the intellect, the determination, and the reputation to enhance the national standing of our Medical School and lead the AHC."

Correction

The article "Doctor of ..." on p. 10 of our November issue incorrectly stated that optometrists may "recommend" treatments. In Minnesota and most other states, they can prescribe all topical and almost all oral medications. The article also stated that optometrists do a year of clinical rotations in addition to four years of post-graduate study. The clinical rotations are, in fact, done during the four years of training. Some graduates will do an extra one-year residency after optometry school, but it is not necessary to practice. Finally, the article stated that those who go into allopathic and osteopathic medicine must complete four years of graduate training plus a three-year residency. In Minnesota, physicians are licensed after their internship year.

–The editors

Dominique Tobbell, Ph.D., is bringing to life the stories behind the stacks.

PHOTO BY RICHARD ANDERSON

Sharing our stories

An oral history project preserves the voices of some who influenced health sciences education in Minnesota.

BY SUZY FRISCH

A shortage of physicians, nurses and dentists. Questions about the cost of a medical education and the best ways to deliver care. Concern that health professionals are too concentrated in urban areas. These pressing worries today were also top of mind in the 1950s and '60s. History does repeat itself.

Today's researchers and health care policy makers don't have to imagine what their predecessors thought about these issues. Thanks to the Oral History Project at the University of Minnesota's Academic Health Center (AHC), they can hear what they thought about and how they responded to the challenges of the day.

"I really believe that history can and should inform contemporary practice," says Dominique Tobbell, Ph.D., head of the Oral History Project and an assistant professor in the history of medicine program. "There is a lot to learn from the way institutions and individuals handled issues in the past—what was successful and what didn't work, what choices were made and paths not followed."

Launched in 2008, the project was a way to preserve the stories of those who helped develop the U's various health sciences programs—medicine, dentistry, pharmacy, nursing, public health, veterinary medicine. Listening to the interviews, we see issues and events through the eyes of the people who told them.

"Being able to speak to individuals who lived through the history adds a human perspective beyond what can be dry institutional records," notes Tobbell, who says students have used the oral histories for class projects. "Students really connect with it. It makes them realize that what they are reading about in textbooks actually happened. It really gives life to the history."

Tobbell and her team ultimately will conduct interviews with about 100 people—doctors, researchers, dental hygienists, executive assistants and others—before wrapping up the project this spring.

So far, they have done 85 interviews on a range of topics—from advancements in organ transplantation to the creation of advanced pharmacy degrees. Tobbell was particularly intrigued by the stories about the efforts to save the colleges of Dentistry and Veterinary Medicine in 1987, when a University task force recommend they close for budgetary reasons. She notes that Neal Vanselow, M.D., who was vice president for health sciences at the time, talked about how members of an advisory committee, which included veterinarians and dentists from around the state, lobbied

leaders at the U and Legislature to make sure the proposal didn't go very far.

The oral histories complement the documents, photos and other materials that fill the University's archives. The transcripts are posted on the Academic Health Center History Project website (http://blog.lib.umn.edu/ahc-ohp/ahc-oral-history-project/about-the-project.html).

Beyond words on paper

For oral history participants, telling their stories allows them to take stock of their careers and contributions. Paul Quie, M.D., senior advisor and co-director of the university's International Medical Education and Research Program, shared memories of his nearly 60 years with the university, which started with residency in 1954. He became a member of the pediatrics faculty in 1958 and later served as chief of staff of the University Hospital and Clinics.

> "There is a lot to learn from the way institutions and individuals handled issues in the past—what was successful and what didn't work, what choices were made and paths not followed." —DOMINIQUE TOBBELL, PH.D.

Among other topics, Quie talked about the excitement of being at the U during the 1950s, when medical breakthroughs such as the development of cardiopulmonary bypass were happening. "It's a good demonstration of never, never, never giving up, and realizing that the heart had never been entered before," he says. "In retrospect, this was a very heady time to be at the University of Minnesota."

Sandra Edwardson, a nurse who earned her Ph.D. from the School of Public Health and recently retired after serving as a School of Nursing professor for 34 years and dean for 14 of those, wanted to ensure her school's 100-plus-year history was well-represented. The U's School of Nursing was the world's first university-based school of nursing. She recalled helping create the nurse practitioner program and in 2007 convincing university leaders to add a doctorate in nursing program as well.

"Our school has a unique role in American nursing history," she says. "I think it's important to document it for future generations who want to know how these things came to be." **MM**

Suzy Frisch is a Twin Cities freelance writer.

What's in a Name?

When it comes to our state's history of caring for people with mental illnesses and physical deficits, quite a bit.

BY CARMEN PEOTA
PHOTOS COURTESY MINNESOTA DEPARTMENT OF HUMAN SERVICES UNLESS OTHERWISE INDICATED

How we should care for our most vulnerable citizens is an issue Minnesota first tackled some 150 years ago. At that time, the state's approach to caring for people with mental illnesses, addiction, contagious diseases and physical defects was to house them in large, if not grand, buildings set on acres of land in small towns. Seventeen such facilities were once in operation.

As understanding of the conditions of the people they served evolved, so did treatment. Programs were added and/or discarded, buildings were built and torn down, and new treatment approaches were tried. As thinking changed, so did terminology, and the linguistic changes were reflected in the names of the facilities.

In 1985, Gov. Rudy Perpich renamed the remaining state hospitals "Regional Treatment Centers." By then, the mental health system was becoming decentralized. People with substance abuse problems were treated in a variety of settings. Children with mental and physical disabilities were cared for in group homes, specialized hospitals or at home. Here's a look at how the names of a few state-owned institutions evolved over the years.

ACKNOWLEDGEMENT Thanks to Sarah Berg, communications liaison, Minnesota Department of Human Services, Direct Care and Treatment, for her assistance with this article.

St. Peter

1866 The state's first **Asylum for the Insane** is opened.
1893 The hospital is designated **St. Peter State Hospital.**
1911 An **Asylum for the Dangerously Insane** is built on the land to house and treat "mentally ill and dangerous men from the entire state."
1957 The Legislature allows the hospital's residents to rename the hospital **Minnesota Security Hospital.**
1963 Minnesota Security Hospital separates from St. Peter State Hospital.
1970 The **Intensive Treatment Program for Sexual Aggressives** is established.
1980s The **Minnesota Sex Offender Program** is formed.

Today, St. Peter is home to a wing of the Minnesota Sex Offender Treatment Program and the Minnesota Security Hospital, which treats people who are mentally ill and dangerous.

Back view of the St. Peter Asylum for the Insane, 1880

Hastings

1899 **Hastings Asylum for the Insane** opens when 112 patients are transferred to it from the state hospital in Rochester.

1919 The name changes to **Hastings State Asylum.**

1937 The name changes to **Hastings State Hospital.**

Over the years, it starts and disbands "mental retardation" and alcohol and drug abuse programs. In 1978, the hospital closes and is acquired by the VA.

Hastings State Hospital Buildings, circa 1940

Cambridge

1919 The Legislature authorizes creation of the **Minnesota Colony for Epileptics.**

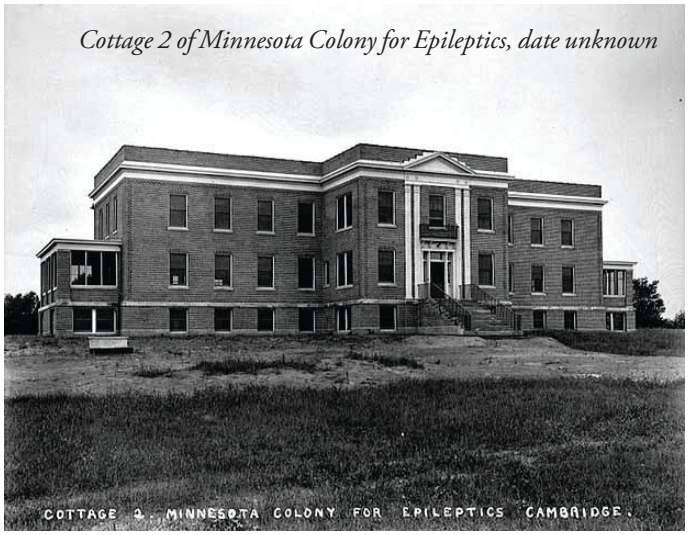
1949 The name changes to **Cambridge State School and Hospital.**

1967 The Legislature changes the name to **Cambridge State Hospital.**

1985 The name changes to **Cambridge Regional Human Services Center,** which serves developmentally disabled persons from nine counties.

1999 The facility closes.

Cottage 2 of Minnesota Colony for Epileptics, date unknown



Beds in the women's residential ward, 1910

Asylum for the Dangerously Insane Opened May 22, 1911

St. Paul

1897 The Legislature gives the University of Minnesota the authority to start the **Minnesota Institute for Crippled and Indigent Children.**

1925 The hospital is renamed after its chief surgeon Arthur Gillette, M.D., and becomes **Gillette State Hospital for Crippled Children.**

1971 The hospital is renamed **Gillette Children's Hospital.**

Today, the hospital is a multisite entity known as **Gillette Children's Specialty Healthcare.**

Aerial view of Ah-gwah-ching administration building, circa 1980

Ah-gwah-ching

1907 The **Minnesota State Sanatorium for Consumptives** opens its doors on the banks of Leech Lake in Cass County.

1922 The U.S. government changes the name of the post office at the sanatorium from **State Sanatorium** to **Ah-gwah-ching,** which means "out of doors" in Ojibwa. Congress approves funding for a building to be constructed for treating Minnesota Indians.

1957 The name changes to **Minnesota State Sanatorium.**

1962 The facility is converted into a state nursing home for geriatric patients with "challenging behaviors" and renamed **Ah-gwah-ching Nursing Home.**

1983 A **Lakeside Treatment Center** opens to treat chronically chemically dependent patients.

2008 The facility closes.

In 2001, Ah-gwah-ching was added to the National Register of Historic Places.

The children's cottage at the State Sanatorium sometime between 1910 and 1932

PHOTO COURTESY RICE COUNTY HISTORICAL SOCIETY

Minnesota State School and Colony original building, 1881

PHOTO COURTESY RICE COUNTY HISTORICAL SOCIETY

Brush making, circa 1905

Faribault

1879 The Legislature authorizes the Minnesota Institute for the Deaf and Dumb (established in 1858) to start an **Experimental School for Imbeciles.**

1881 The Legislature appropriates $25,000 for the construction of a **Department for the Training of Imbeciles and the Custody of Idiots**.

1887 The name changes to the **Minnesota Institute for Defectives** and later that year to the **Minnesota School for the Feeble-Minded**.

1900 A 40-bed hospital opens, and the name of the institution is changed to the **Minnesota School for the Feeble-Minded and Colony for Epileptics.**

1949 The name is changed to **Minnesota School and Colony.**

1955 The name changes to **Faribault State School and Hospital.**

1980s The Legislature authorizes the facility to be turned over to the Department of Corrections for a new prison, and the name changes to **Faribault Regional Center.**

1998 The facility closes.

Willmar

1907 The Legislature authorizes establishment of **Willmar Hospital Farm for Inebriates.**

1912 The hospital opens.

1917 Because of prohibition, business is slow, so the hospital expands its mission to include caring for the mentally ill.

1919 The name changes to **Willmar State Asylum.**

1937 The name changes to **Willmar State Hospital**.

1965 An adolescent treatment program is started.

1973 **Glacial Ridge Training Center** is established, which provides training for developmentally disabled people.

1985 Name changes to **Willmar Regional Treatment Center.**

1996 Developmental disability services become community-based.

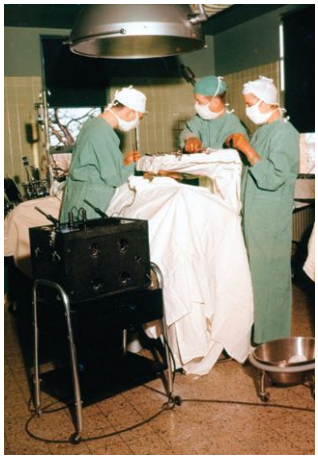
2006 The hospital's 37 buildings are sold. Seven are purchased by Kandiyohi County and leased back to the state.

Today, Willmar is home to **Minnesota Specialty Health System**, which serves adults with complex needs; has a chemical dependency program; and offers child and adolescent behavioral health services.

Patients husking corn, circa 1950

Willmar Hospital Farm for Inebriates administration building, circa 1915

Main building at Anoka Asylum for Insane, 1910



Operating room of Anoka State Hospital, circa 1940

Anoka

1900 **Anoka Asylum for Insane** opens.

1919 The facility becomes known as **Anoka State Asylum.**

1937 The name changes to **Anoka State Hospital.**

1985 The name changes to **Anoka-Metro Regional Treatment Center.**

Today, this state facility consists of a 110-bed inpatient mental health facility and a 26-bed chemical dependency center. It offers outpatient care as well. **MM**

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A LOOK INTO THE FUTURE

PHYSICIANS' PREDICTIONS ABOUT MEDICINE

BY CARMEN PEOTA

The end of a calendar year always seems like the right time to look ahead. Rather than ask futurists to tell us what's in store for health care, we decided to ask physicians what they see coming for their niche of medicine. We lobbed a bunch of questions their way: How will their specialty or practice or research or institution change in 20 years? What scientific, economic or social forces will have the greatest impact on the health of their patients? What technology will be disruptive? What disease will be cured? How will the physician's role change? What problems will patients be facing? How will the health care delivery system work? Will your specialty still exist? Will your job exist?

A number took us up on our request and wrote down their thoughts about the future. Some see a bright one, others a dim one. We found their responses fascinating and think you will, too.

EMPHASIS OF BIOETHICS WILL SHIFT

I see bioethics expanding its scope beyond concern for patient autonomy. In recent decades, clinicians and bioethicists have concerned themselves primarily with identifying and honoring patients' preferences for care. Even when the patient cannot participate, autonomy has been considered the dominant ethical principle, extended through advance directives and surrogate decision-makers. Informed consent has served as the *sine qua non* for clinical care, for participation in research studies and for staying out of malpractice court.

Respect for personal autonomy has been so overarching that physicians have sometimes felt that it's displaced their professional judgment and that they have been reduced to providing patients with a menu of clinical options. No one questions whether patient autonomy should factor into decisions about aggressive and expensive medical care at the beginning and end of life. But some are now asking whether the principles of beneficence, nonmaleficence and justice should carry the same weight in other medical decision making.

In 20 years, patient preference will still factor strongly in decisions about whether to pursue aggressive care, but such decisions will also begin to reflect the very real fiduciary responsibilities of care providers. The provision of expensive but essentially futile care will be recognized as a violation of the principle of distributive justice and of good stewardship of health care resources. Achieving a new balance between autonomy and justice will challenge the next generation of clinicians, patients and health system leaders.

CHARLES E. GESSERT, M.D., M.P.H.
SENIOR RESEARCH SCIENTIST, EMERITUS
ESSENTIA INSTITUTE OF RURAL HEALTH

TECHNICIANS, NOT SURGEONS, WILL DO PROCEDURES

For the most part, surgery will be consumer-directed and performed by non-physician technicians who have received minimal training. Common problems will be easily detected by imaging modalities that will be in nearly every home and/or pharmacy, the way thermometers and blood pressure cuffs are now. Apps for mobile devices will enable consumers to simply book a hernia repair (done without incisions) similar to the way they book a hotel or flight.

Technicians will operate precision robotic machines capable of confirming most common surgical problems and planning and performing the needed repair/drainage/debridement with nearly 100 percent accuracy and minimal complications. Nonsurgeons and advanced practice nurses will manage most surgical patients. Physicians with classical surgical skills including cutting, dissecting and sewing, and the ability to override robotic moves will wear multiple supervisory hats.

The human body will not have evolved, per se, and thus people will continue to have problems related to chronic illness, infections and obesity. However, disease identification and decision making will have been pushed out to average consumers, who will be able to diagnose diseases of the breast, colon, prostate, heart, vasculature and bones with impressive accuracy using computers. Most emergency care will be provided at free-standing centers by non-physicians.

Consumers will use the competing interests of health care stakeholders (big pharma/tech, providers, organizations, insurers) to their advantage—demanding low-cost, high-quality care that is accessible and paid for by individuals rather than employers. As our population assumes responsibility for their health as well as their health care, we will gradually see enlightenment and thus reductions in heart disease, diabetes, smoking, hypertension and obesity along with an increase in exercise and eating of natural food diets.

As a culture, we will have better accepted the concept of the end of life and will include complex-decision specialists (formerly known as palliative care specialists) in assisting us with determining what is appropriate and realistic care. The focus of care will shift to optimizing quality of life, enjoying meaningful relationships and being comfortable—rather than maximal resource utilization.

GARY B. COLLINS, M.D., M.B.A., FACS
HEAD, SURGERY DEPARTMENT
REGIONS HOSPITAL

MEDICAL EDUCATION WILL BE MORE EFFICIENT

Because of cost concerns, undergraduate medical education will have to become more efficient. The most drastic changes, I think, will come in the preclinical years. In the future, lectures will be preprogrammed and delivered via whatever progeny of the iPad comes to dominate the tech scene, rather than given in person through the current tried-and-true, calendar-based didactic system. The possibilities of such a system boggle the mind: Could students learn about global health from a lecturer in Kenya? Could they take courses from their home institution while abroad? Could universities realize further savings by sharing lectures among disciplines?

Eliminating live lectures will reduce the need for lecture hall space and the number of man-hours needed to coordinate guest lecturers, both of which will be a boon for budgets.

Separating preclinical coursework from the almighty calendar also will allow for more academic flexibility. Students will be able to concurrently work toward additional advanced degrees, complete research, participate in advocacy and/or complete coursework at the speed necessary for them to master the material. Medical education will be more about becoming competent than following a schedule.

AARON CROSBY
MEDICAL STUDENT
UNIVERSITY OF MINNESOTA

PATIENTS WILL HAVE MORE POWER

Psychiatrists will have a sophisticated understanding of the root causes of the "diseases" their patients have and be wiser about how and when to apply patient-centered or population-based approaches. The potential for personalized care will be greatly augmented by emerging genetic, biological and cybernetic knowledge. These factors will be considered in a bio-psycho-social model of medical practice.

Regarding the future of U.S. health care provision and funding: I think Medicaid and Medicare will be altered so that consumers (patients) have much more control over their care choices and insurance arrangements. Patients (consumers) will demand to be treated as adults rather than ciphers in a population or capitation demographic. Greater economic power will go to patients, who will determine who their caregivers will be and what their health insurance protections encompass. As patients realize these powers, they will actively participate and collaborate in their plans of care, especially when it comes to what we now call "primary care."

LEE BEECHER, M.D.
PSYCHIATRIST
PRIVATE PRACTICE

POST-ACUTE CARE WILL EXPAND

Given our changing demographics and the economics of health care, post-acute care, which already makes up nearly 25 percent of total Medicare spending (according to 2012 MedPAC data) will grow tremendously. As I see it, post-acute care includes long-term acute care, home health care, hospice, palliative care, community case management and many other areas. It is provided in transitional care units, skilled nursing facilities, assisted living facilities, group homes, adult day care centers, community centers and other places where people gather.

The workforce providing post-acute care will be trained in geriatrics and to function in cohesive teams. And during their training, students of medicine, nursing, social work, pharmacy, therapy, epidemiology and case management and many others will be exposed to the venues, beyond hospitals and clinics, where such care is offered. We will be using technologies such as home telemonitoring, smart phones and smart houses in providing this care and improving the health of communities.

Post-acute care will be integrated with traditional care to create more holistic and well-rounded care plans. We will have courageous conversations about the goals of care and end-of-life care and death itself with our patients and their families. We will have created new ways to promote health such as using nurses from faith communities to coach elders on how to avoid falls. We will uncover disparities in health and address them in ways that honor the diverse backgrounds of our neighbors. Post-acute care and services will concentrate on the social determinants of health and less on the delivery of health care itself.

RAHUL KORANNE, M.D., M.B.A., FACP
VICE PRESIDENT AND EXECUTIVE MEDICAL DIRECTOR
HEALTHEAST CARE SYSTEM
COMMUNITY AND POST-ACUTE CARE SERVICES

HIV AS A SPECIALTY WILL ATROPHY

The future of HIV specialists like me is uncertain. Treatment for HIV will improve greatly, and most regimens will either be one pill once a day or monthly intramuscular injections. As HIV treatment advances and we come close to a cure, the need for HIV specialists will diminish altogether. I predict that eventually my job will not exist.

The future of clinical researchers like me also is uncertain in the United States, as it takes a high level of support, patience and sophistication to conduct research in a hostile funding and regulatory environment. The fate of public institutions such as Hennepin County Medical Center also is unknown. Safety-net hospitals will need more support from the state and federal government to survive. Wealth disparity and the state of the social contract between citizens and government are the socioeconomic factors that will have the most impact on the future of medicine.

KEITH HENRY, M.D.
HIV PROGRAM
HENNEPIN COUNTY MEDICAL CENTER

CARDIOLOGY WILL STILL HAVE A ROLE

As a physician leader of the Minneapolis Heart Institute and Allina Health, I couldn't be more excited about the future. I see us improving care models, reducing variation and standardizing processes that save lives, and enhancing the experience of patients. Preventing cardiovascular disease rather than treating it will become an ever-increasing portion of the work we do. Already in Minnesota, cardiovascular disease has lost its place as the No. 1 killer. No other state can make this claim.

Yet cardiology will still have a role in 20 years. While the focus will be on preventing disease, there will remain a need to treat the devastating effects of coronary artery disease brought on by smoking and diabetes. And as we live longer, the incidence of heart rhythm disorders and valvular heart disease will become more prevalent. Fortunately, new technologies will lead to less invasive, more effective modalities of care.

Over the next 20 years, I expect to see us extending physicians' reach beyond the bedside or exam table by making better use of advanced practitioners and technology while providing better care. I expect technology will not only connect us to patients in their homes but also allow them to communicate directly with members of their care team. Imagine virtual clinics and specialty care centers where specialists are only a click or screen touch away from the patient. Physicians will have expertise, beyond that needed for the one-on-one patient encounter, in managing a community or population of people.

The cost of providing care will continue to challenge us personally and as a nation; we simply cannot afford to continue on our current spending trajectory. Recent bends in the cost curve have given me some optimism that we will curb our spending and realize that better care is less costly care.

DAVID G. HURRELL, M.D.
CHAIR OF CARDIOLOGY
MINNEAPOLIS HEART INSTITUTE
ABBOTT NORTHWESTERN HOSPITAL
ALLINA HEALTH

ANTIBIOTICS WILL HAVE NO EFFECT

Microbes have the upper hand over humans. They vastly outnumber us, are more prolific and mutate rapidly to thwart every blockade we throw in their path. Over the next 20 years, we can expect the problem of antibiotic resistance to further exacerbate unless scientific research can uncover new drugs to stay ahead of microbes' canny ability to adapt. Currently, there are a finite number of known pathways to kill microbes. Unless new ones are found, we may soon fall behind the march of the microbes. No doubt this will greatly affect my job as an infectious disease specialist. I will be busier than ever but have little to offer patients other than palliative measures. This is how infectious diseases were treated prior to the miracle of antibiotics, and that is why we stress antibiotic stewardship today—to preserve the miracle of antibiotics into the future.

GARY R. KRAVITZ, M.D., FACP, FIDSA, FSHEA
INFECTIOUS DISEASES SPECIALIST,
ST. PAUL INFECTIOUS DISEASE ASSOCIATES
EPIDEMIOLOGIST, UNITED HOSPITAL
CHAIR, INFECTION PREVENTION AND CONTROL COMMITTEE,
ALLINA HEALTH

CARE WILL BE MORE TEAM-BASED

Team-based care will expand to most parts of medicine, thus increasing significantly the number of patients each physician can manage responsibly. Everyone on these teams—from medical assistants to primary care physicians—will have an expanded role. Physicians will be members and clinical leaders of the teams; they will not be doing everything themselves.

Highly specialized physicians will "refer back" their stable patients to primary care teams, providing "concrete triggers" for specialty reassessment. The specialists and the teams in health care homes will share in both the care and the reward for care.

Frail elderly and complex patients will receive a substantially increased percentage of their care from home-visiting teams made up of pharmacists, community health workers, social workers nurses, nurse practitioners and physicians. Physicians will be more actively involved in end-of-life care. Options will be openly discussed and more widely accepted. A body of ethical principles and practices will emerge as a necessary part of this.

Physicians and other team members will more often interact with patients via the Internet, phone and video rather than in the office. Physicians not only will need to work closely with other team members, but also will need to assure patients that a knowledgeable and caring physician is coordinating their care.

Much routine follow-up, patient education and lifestyle change management will be accomplished through online coaching and web-based education. Most preventive care will be done by non-physicians following standing orders. And many more patients will be monitoring themselves at home. Office visits will be for moderately acute care, pulling together information and creating a coherent treatment plan, interpreting confusing data and reassuring patients who are concerned about information gleaned from tests or learned online.

Consolidation of health delivery systems will continue to the point where a small number (perhaps less than one per state) of highly integrated delivery systems will deliver the majority of highly complex tertiary care.

MACARAN A. BAIRD, M.D., M.S.
PROFESSOR AND HEAD, DEPARTMENT OF FAMILY MEDICINE
AND COMMUNITY HEALTH
UNIVERSITY OF MINNESOTA MEDICAL SCHOOL

THE HEALTH CARE INDUSTRY WILL FAIL US

In 20 years, we will look back at the second decade of this century as the Decade of Decline of the Health Care Industry and the Decade of the Patient Revolution. The health care industry will decline because in pursuing profits, it will fail to meet the needs of all people desiring to maintain and recover their health. People will revolt as they learn the research evidence that should guide their care is tainted by intents other than clarity and accuracy.

People will revolt as they see the sick get sicker from too much health care. People will revolt as hospitals and clinics build bigger facilities in response to the rising demand for their services and they realize the health care industry does not help people avoid getting sicker. And people will revolt as this industry almost renders the healthy person extinct. From birth, everyone will either be sick or at risk of being sick, and both groups will be required to consume health care until or even after their last breath.

The patient revolutionaries will demand and achieve health care for all, delivered parsimoniously and with respect and competence by professionals who care. This care will be delivered in a way that fits the patient's informed preferences and specific situation. The research informing that care will be sufficiently independent and rigorous, and studies will be large enough to answer the questions that matter to patients.

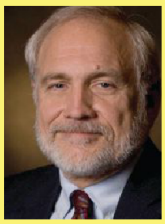
Health care will leave the smallest possible footprint on people's lives. Few people will need it because the patient revolution will focus on health, on the ability of people to fulfill their roles and pursue their hopes and dreams. They will pursue this goal by working to improve environments, enhance the meaning of work, strengthen relationships, and reduce poverty, insecurity and inequality.

The patient revolution's success will become evident and gain momentum when hospitals and clinics become repurposed as recreation and sports centers, schools, museums and areas of social engagement and participation in community life. Then, and for the first time, they will become the cathedrals of health.

VICTOR MONTORI, M.D.
DIRECTOR, HEALTH CARE DELIVERY RESEARCH PROGRAM
MAYO CLINIC

HEALTH CARE WILL HEAL ITSELF

When asked if I'm optimistic about the future of medicine, my answer is an unqualified yes. Here's what I envision:



In 20 years, our profession will have become unrecognizably collaborative; with connections among clinicians of different kinds, among different care systems, among payers and caregivers—all to benefit the patient.

Information technology will reach full flower. This is one of the things that excites me as a doctor. Our ability to deeply know and understand our patients and populations, to synthesize the relevant science for that patient and have it at our fingertips, to act much further upstream in the prevention of disease and to customize treatment—all of these things will progress vastly beyond where we are now. Today, we're only scratching the surface.

I'm optimistic about getting costs under control and payment reform sorted out long before 2033. I see us lowering our medical spend in the United States to about 12 to 14 percent of GDP, where it needs to be, with reinvestment of the savings in necessary social supports that address factors contributing to health outside of clinical settings such as housing, poverty, education and disparities.

It's tempting to view our current challenges around cost, coordination of care and communication as obstacles and to think we're not progressing fast enough. I prefer to believe, however, that future generations will view 2013 as a hinge between the traditional, broken system we're now exiting and the one we're already entering—one that works much better for us, our patients, our communities and our society.

BRIAN H. RANK, M.D.
MEDICAL DIRECTOR
HEALTHPARTNERS MEDICAL GROUP

EDUCATION WILL EVOLVE, OUTCOMES WILL RULE

I see the future changing significantly in two areas:

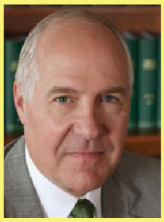
1. In medical education, the flipped classroom will become the norm. Students will not assemble to hear a local expert lecture on a given topic. Instead, they will view the best lectures on core topics online (similar to TED Talks or Kahn Academy courses) and come to class to discuss the context, meaning and application of what they heard. It only makes sense that valuable in-person class time be reserved for more interactive experiences. Corsera has, in part, already launched this trend by providing Ivy League lectures online, but the real innovation will be integrating the online and classroom experience.

2. In primary care, quality improvement will no longer be the work of a few interested academics and health systems experts. The clinical work around chronic disease and health screening will largely be population management. Health systems will require physicians to produce good outcomes, not just doctor-patient interactions. That said, the job of the primary care physician will be to manage systems of care for populations and intervene with individual patients as needed.

DAVID J. SATIN, M.D.
ASSISTANT PROFESSOR, FAMILY MEDICINE AND COMMUNITY HEALTH
UNIVERSITY OF MINNESOTA

PSYCHIATRY WILL SEE THE REVIVAL OF PSYCHOTHERAPY

I envision a resurgence of interest in psychotherapy. In the United States, psychoanalysis was once the leading domain in psychiatry departments in medical schools, especially those such as the University of Minnesota's that were started after World War II. For a decade, the focus of research and, perhaps even more so, of textbooks and teaching, was on psychotherapies.



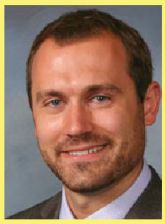
That began to change with the discovery of antipsychotic and antidepressant medications in the 1950s. Researchers, usually working at state hospitals, attempted to determine the efficacy of such drugs as chlorpromazine. The research focus then shifted to examination of neurotransmitters, and we began to understand the biochemistry of the brain. That led to achievements such as that by Nobel Laureate, Arvid Carlson, Ph.D., who discovered how dopamine acted in the brain. Since discovery of medications such as clozapine, the first atypical antipsychotic, and fluoxetine, the first serotonin re-uptake inhibitor (SSRI), the focus in psychiatry has essentially remained on use of these and other pharmaceutical agents.

But that is shifting. More recently, brain imaging has revealed that brain structure and function are affected not only by drugs but by various nonpharmaceutical therapies. For example, University of Minnesota's Angus MacDonald and his colleagues have demonstrated that patients with schizophrenia increased their frontal lobe functioning after receiving neurocognitive remediation—a new computerized therapy for seriously ill patients. A very interesting study from Columbia University demonstrated that the amygdala returned to normal activity after talk therapy. This is spawning new interest in nonpharmaceutical therapies.

I envision research leading to exciting new fields such as neurocognitive remediation and eventually to changes in practice. As we offer these therapies to patients, we will find that psychiatrists will need to have more time with them than is currently allowed in many settings. And payers will need to reimburse them for the time they spend.

CHARLES SCHULZ, M.D.
HEAD, DEPARTMENT OF PSYCHIATRY
UNIVERSITY OF MINNESOTA

THE PHYSICIAN'S ROLE WILL CHANGE



Health care in the United States is undergoing a massive transformation. Insurance marketplaces are revolutionizing the way individuals, families and small businesses access health coverage. Millions of Americans will gain access to health insurance because of Medicaid expansion, tax subsidies and a host of additional measures. And innovations in quality metrics and payment structures are aiming to decrease costs while improving quality. These are important reforms. But I hope there is an even larger paradigm shift in medicine—that physicians will play a more active role in improving our health system and the health of populations.

The predominant focus of the 20th century physician was the health of the individual patient. While individual patient care will remain paramount, the 21st century physician will be prepared to improve the overall health of society and ensure that the services and resources they provide are distributed justly and equitably. The 21st century physician will recognize that the care of one patient has an impact on the care of another. And the 21st century physician will understand the impact of poverty and income inequality on population health. For this to occur, medical schools must begin teaching about health systems, quality improvement and health policy.

Medical societies have called on physicians to advocate on behalf of their patients for decades. The 21st century will witness physicians being trained as advocates and capable of confronting the many challenges affecting the health of our state and nation.

TYLER WINKELMAN, M.D.
RESIDENT, INTERNAL MEDICINE AND PEDIATRICS
UNIVERSITY OF MINNESOTA

WE WILL HAVE A DEARTH OF CLINICAL RESEARCHERS

I believe my job will no longer exist the day I retire, and that in the future we will have a dearth of active clinical researchers. I especially doubt that we will have many groups of family physicians doing federally funded research—currently my niche. Funding is difficult to get, and it's difficult for young researchers to develop the portfolio of work needed to obtain new grants. As family physicians are replaced by nurse practitioners and physician assistants, fewer will be able to do this kind of research because these other providers seldom have the training, interest or ability to develop large research projects.

Consequently, the data available to patients will be less relevant to them because most research will be done in large academic centers that do not provide care for the majority of patients.

BARBARA YAWN, M.D.
DIRECTOR OF CLINICAL RESEARCH
OLMSTED MEDICAL CENTER

NEW TOOLS WILL HELP US TREAT HEART DISEASE

Today, heart disease is the No. 1 killer of women and men in the United States, and while it may have fallen in rank in the last 20 years, there will still be a high demand for cardiologists because so much of heart disease is related to lifestyle and aging. However, our doctor's bag will be filled with many new tools, and the focus of our efforts will change. The science of individualized medicine will provide technology that will not only predict an individual's onset of heart disease but also allow the promise of primordial prevention to be realized. Currently, we treat risk factors such as diabetes, elevated cholesterol and high blood pressure once they occur. By 2024, I believe we will be able to prevent their development.

For patients for whom these preventive efforts have come too late, regenerative medicine will provide new options for renewed heart health. Today, we are very close to routine regeneration of myocardium from adult stem cells. In 20 years, we will be regenerating heart valves and whole hearts, dramatically reducing the need for donor hearts and mechanical valve implantation.

SHARONNE N. HAYES, M.D., FACC, FAHA
PROFESSOR OF MEDICINE
WOMEN'S HEART CLINIC
MAYO CLINIC

DRUGS WILL PREVENT ALZHEIMER'S DISEASE

Within the next 20 years, we will see the development of drugs that prevent Alzheimer's disease. As a physician, I am most interested in preventing the disease or halting its progress before it disrupts people's lives. As a research scientist, I recognize that a strong basic science foundation is essential to achieve this goal. My laboratory's focus is on discovery of the molecules and chemical pathways in the brain that cause neuron loss. We and many others believe that the disease is triggered by small assemblies of the β-amyloid protein, the main protein component of amyloid plaques, and have identified a specific β-amyloid assembly that correlates markers of synaptic dysfunction in the human brain with memory dysfunction in mouse models of Alzheimer's disease. We also believe that these pathogenic forms of β-amyloid somehow lead to abnormal processing of the tau protein—the protein that forms neurofibrillary tangles—and that it is some form of abnormal tau that causes neuron death. Identification of the toxic form(s) of tau and of the pathways connecting β-amyloid to tau are my major goals and the goals of many other Alzheimer's researchers. The role of inflammatory processes in the brain is another area of research that shows much promise.

If we can identify these molecular villains, we will be able to detect Alzheimer's disease before clinical symptoms are present and develop drugs that prevent their formation, destroy them or interfere with their actions in the brain, and thus prevent symptomatic disease. We are making good progress, and I am confident that we will start to reap the benefits of this progress and develop drugs that can prevent a disease that now affects 5 million people in the United States.

KAREN H. ASHE, M.D., PH.D.
DIRECTOR, N. BUD GROSSMAN CENTER FOR MEMORY RESEARCH AND CARE
EDMUND WALLACE AND ANNE MARIE TULLOCH CHAIRS IN NEUROLOGY AND NEUROSCIENCE
PROFESSOR OF NEUROLOGY
UNIVERSITY OF MINNESOTA MEDICAL SCHOOL

Ten years past, **ten years ahead**

Where we have been and where we are going—reflecting on my medical school commencement speech

BY KEITH M. SWETZ, M.D., M.A., FACP, FAAHPM

On a recent Saturday, I sat with my beautiful wife of 10 years, Jessica, at the Orpheum Theater in Minneapolis and watched the off-Broadway production of *Wicked*. Our four children were sleeping over at Mom-Mom and Pop-Pop's after a day of spoiling. The previous evening, we all attended our local high school's homecoming football game. I had recognized the faces of many friends and colleagues in the stands and thought about how Minnesota really had become home since Jess and I came to Rochester 10 years ago as newlyweds for my internal medicine residency.

Earlier that day, I called my mother in northeastern Pennsylvania, where I grew up, and listened as she relayed the latest happenings. Times were tough, with the recent deaths of three uncles. That same day, Jess and I had run the Purple Stride 5K race in Rochester in memory of my Uncle Mike, who left us after his battle with pancreatic cancer. All of these things had induced a particular feeling of nostalgia, so when Dr. Debra Powell, a friend and colleague, posted on my Facebook page, "We'll miss you tonight!" it really hit me.

That weekend was the 10-year reunion of my Penn State University medical school class. Although I couldn't make it back to Hershey for the event, I decided to take time to reflect on the joy that being a husband, father and physician-healer have brought me over these years. Thinking about my classmates took me back to our commencement ceremony on May 18, 2003, when I delivered the address on behalf of my graduating class.

I was a 26-year-old kid, had been married for all of three weeks, had no children and had not lived outside of Pennsylvania for any appreciable amount of time. Yet I had been selected by my peers to deliver words of encouragement, reflection and gratitude.

My class was a diverse one, with students at all stages of life and from all over the world. Dr. Powell, who had been my freshman biology lab and microbiology professor at Albright College, was a member of my medical school class. Being chosen to give the address had given me pause: What wisdom or worldly experience could I, a relative neophyte, impart to such a seasoned group of people? So I reflected on what had been most valuable to me up to that point, what challenges I had been through and what I thought the future might hold.

In my speech, I encouraged myself and my classmates to answer a "great call" to live out our dreams as physicians. I referred to an essay Dr. Eric Cassel wrote in 1982, "The Nature of Suffering and the Goals of Medicine," and talked about our interdependence. I also mentioned a 1986 essay by Dr. Carola Eisenberg of Harvard Medical School, who described the problems that bogged down physicians.

As I look back on those words, I was struck both by what has changed and what has remained the same. The problems Dr. Eisenberg described still persist, but in different forms. Complaints about where medicine is going remain ubiquitous, although the term "affordable care" has replaced "managed care" and "HMO." Compensation for physician time and services remains a huge concern, and cuts to Medicare and Medicaid reimbursements still threaten clinicians' ability to effectively meet the needs of vulnerable populations.

Medical education is even more complicated today than it was 10 years ago. Both students and faculty must master an ever-growing panoply of knowledge in an ever-vanishing amount of time. Although my internship class was the first to adopt the 80-hour work week, we are still debating the ideal number of hours that residents should be allowed to work. In the meantime, more is being required of supervising physicians. For attending physicians, the words, "I agree with the resident's note and plan" just don't cut it anymore. In order to maximize reimbursement, more detailed, extensive, and time-consuming documentation is required.

As I wrote this essay, I reflexively used the term "clinicians," not "physicians," as

"President Spanier, Dean Kirch, distinguished guests, family and friends, and most especially, my dear classmates and colleagues in the Class of 2003..."

A few years ago, Dr. Carola Eisenberg, a famed educator at Harvard Medical School, wrote an essay entitled "It is Still a Privilege to be a Doctor."[1] This was in response to the despair that third-year medical students encountered when transitioning from the pre-clinical years in the classroom, to the clinical years on the wards. She had found that these students, like us, had spent a minimum of 18 years in preparation for that great privilege to don the short white coat and actually meet and interact with patients. And though similar to our experience, they displayed exuberance for the various types of patients they encountered, they were disconcerted by some of the teaching they had received. It seemed that while many physicians at the teaching institutions demonstrated a youthful passion for teaching and were glad to have the students aboard, many had become calloused and disgruntled by the problems that were plaguing medicine. Malpractice premiums were skyrocketing. Reimbursements and research funding were plummeting. There were numerous problems with access to health care, with equitable distribution of goods and services, and with the time constraints and perceived loss of freedom that accompanied the advent of managed care. As Eisenberg summarized, many felt that "medicine…was no fun anymore."[1]

For hundreds of years, physicians had experienced an esteemed role in society—as healers, as teachers, and as upstanding citizens and human beings. In the original translation of his oath, Hippocrates called for those physicians adhering to his principles to be "honored with fame among all men for all time to come." However, many of those that Eisenberg described in her essay were unhappy with their career choice and were more concerned with receiving some respect and autonomy, let alone fame and honor.

What I find most disconcerting with this analogy is the loss of perspective. When I was making my decision to apply to medical school, there were a few who felt research or teaching might be a better option. When making my decision for residency, some attempted to sway me from pursuing those interests that I was passionate about in favor of other options that might be more lucrative, might offer more free time, and afford less bureaucratic hassle. But each of us here today had the ability to make a choice that leads up to the next point in our journey, and we will be faced with making similar decisions throughout our lives.

Many of us have worked hard thus far because to some degree, we have been living out our dream. But being the idealistic, type A scholars that most of us are, we also have had the incentive of grades and scores—those allegedly surrogate markers for our performance. However, with today's initiation into the world of the physician, there is a much more serious responsibility that comes. Those formerly important markers of distinction and performance become blurred, as today we are equalized under the implications of that diploma, and the title "doctor of medicine."

The tasks we will face are arduous and the plight of the world is often perplexing. The struggles that plague America and the domain of medicine are often palpable. But when we arrive at our next destination, our mission remains the same. Each of us here today is called to greatness!

By virtue of making it this far, we have, by default, answered that call. Though some may judge greatness by the amount of publications in prestigious journals, by large grants obtained or by monetary wealth, many of us will find greatness in seemingly less obvious locations. While some of us may be destined for "academic" greatness, others will undoubtedly find it in different settings. That may

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I did in my commencement addresses. Today, multidisciplinary and interdisciplinary care—provided by teams of physicians, nurses, social workers and other skilled medical professionals—is routine.

My dreams of coming to Mayo Clinic to become an endocrinologist and diabetes specialist now seem in the distant past—if they were ever there at all. Engaging patients and families in discussions regarding their goals, values and preferences is now the focus of my work. The calling I answer daily as a palliative medicine specialist—helping to develop care plans for patients with complex life-threatening illnesses—has brought me great personal and professional satisfaction. In the last 10 years, I have witnessed the field's growth and feel blessed that it has allowed me to serve my fellow humans at a very significant time in their lives.

When I was interviewing for medical school in the summer of 1997, a stoic cardiologist glared at me and asked me what my biggest fear about going into medicine was. I told him that I didn't know what I was going to do when my patients died or how I would handle it. Now, I can't imagine not being there with my patients and their families throughout the journey of their illness.

In order to do this challenging work, I have taken steps to prevent burnout. I try not to avoid what is difficult and to integrate strategies for wellness. I make time for my wife, children and family—for reflection, writing, friends, travel, faith in something greater than this world, teaching and mentoring—not in an effort to spread myself thin, but to maintain a diversified and ever-evolving wellness portfolio. My hope is that these activities will help me remain passionate about this vocation that I believe I have been called to follow.

Cassel's 1982 essay has become even more meaningful to me since starting practice. I see that the love and support of family remain ever-important, and that interconnectedness with those in Minnesota, those in Pennsylvania and those who have left this world remains essential to maintaining balance in life.

The challenges that medicine will face in the next 10 years are considerable. I cannot even begin to speculate where the Affordable Care Act, advancing technology, finite resources, and reimbursement and financial restructuring will take us. However, I do still agree with Dr. Eisenberg: It is indeed a privilege to be doctor. Although illness, suffering and death continue to be with us, I feel privileged to be present with our fellow humans—to heal, to listen, to comfort and sometimes to simply bear witness. And I look forward with great enthusiasm to doing those things for at least another 10 years. **MM**

Keith Swetz is with the department of medicine's section of palliative medicine, and the Program in Professionalism and Ethics at Mayo Clinic.

MEDICAL SCHOOL COMMENCEMENT ADDRESS

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be in the form of exemplary service at community-based hospitals in any setting imaginable—from the ordinary to the exotic. It may be success through work in underserved areas across the globe, through mentoring and through community service. Regardless of the setting or field of work, the call to greatness is identical and equally as cogent.

In the more modern translation of the Hippocratic Oath[2] that we will recite today, we are called to live up to certain ideals in order to become a "worthy physician." The ideals that are inculcated in the modern version include a call to competence, integrity, candor and fiduciary commitment to our patients and compassion. By striving for these ideals in all facets of our lives, we seemingly have endless potential—potential to not only become extraordinary physicians but moreover, extraordinary human beings.

Today we answer our great call, which is culminated in this initiation and transition to full-fledged members of the medical establishment. There will undoubtedly be those seemingly routine calls at 3 a.m., for shortness of breath or abdominal pain or fever, and we may be tempted to take the short road. But with each, we have the ability to rise up and answer our call—and in a very concrete way, make a difference in the lives of our patients.

Lastly, I'd like to quote the famed physician essayist Dr. Eric Cassel, who wrote, "No person exists without others…(as) it is in relationships with others that the full range of human emotions finds expression."[3] For our family, friends and loved ones—those here with us and those with us in spirit—you have perpetually nurtured our interests and endlessly supported our cause. As we continue to grow as citizens who provide a worthy service to society, may you always keep us grounded in who we are and where we come from. And may you rest assured in knowing that we have not forgotten that this accomplishment today has been made possible in a very special way by your love and support.

With this, it is my most sincere hope that each of us will continue to work tirelessly, reaching beyond our self-imposed limitations, on our calling to become great physicians, and moreover, great human beings.

Thank you and Godspeed, Class of 2003.

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Control of massive hemorrhage

What we can learn from the boy at the dike

BY HARRISON H. FARLEY, M.D.

Many surgical procedures can now be performed with greater precision and less trauma than they could just a few years ago because of new diagnostic modalities and refinements to surgical tools. Yet these miraculous tools and techniques are not all that is needed to successfully treat certain emergencies such as a major airway obstruction and massive bleeding. Managing these conditions demands cool-headedness, more than a modicum of courage and bold action.

When trying to control bleeding from a major blood vessel, direct compression or simply introducing one's finger into the leaking vessel, in the same way the legendary Dutch boy used his finger to plug a hole in the dike, can quickly calm the chaos. This seems so elementary that it needn't be elaborated upon; however, in the moment of gravest danger—when a vessel is gushing blood—panic can set in, resulting in hesitation and precious seconds being lost while searching for instruments. Such moments, in which time is of the essence, demand action.

During my general surgery training, the possibility of having to treat patients with massive hemorrhage always loomed large in our minds, even though it was not an everyday occurrence. To successfully manage such situations required the best of a surgeon. I recall three instances during my residency at the old Minneapolis General Hospital during the late 1950s and early 1960s when bold action saved lives.

In the first case, Mr. P. had an infected groin wound that was the result of an infected superficial femoral-to-popliteal Teflon graft. It had oozed intermittently but had not given way. We were beside ourselves because Mr. P., who had diabetes, had already lost his other leg. As we tried to figure a way out of our dilemma, our patient developed pneumonia. He was sent from the surgery ward to the X-ray department on the ground floor of the hospital for a follow-up chest X-ray.

When he indicated he needed to defecate, he was assisted off the cart and onto a toilet in one of the bathrooms along the corridor. As he strained, the graft-vessel anastomosis gave way and the small, oozing site in his groin turned into a gusher. The torrent of blood could not be stopped by the attending nurse, and her cries for help resulted in near-panic. Chaos ensued.

Hearing the news in the fourth-floor operating room, I quickly scrubbed out and flew down the four flights of stairs, wondering if I could handle the situation if the patient were indeed still alive. When I got there, doctors, nurses and technicians were circling the stall in a frantic circus of useless activity. The patient was seated on the stool and surprisingly alert (although he had a ghostly pallor). Blood was everywhere. There in the stall beside him crouched his Angel of Mercy, a janitorial aide, with her hand thrust in his groin, rendering the previously exsanguinating flow of blood to a trickle.

As the trained personnel dashed hither and yon for help, the cleaning woman used the best tool she had available (her fingers) to stop the blood flow. With the immediate problem under control, Mr. P. was taken to the operating room, where we were able to fashion a new type of shunt that could later be removed around the infected graft. This provided an innovative way out of a dreadful situation.* Make no mistake about it, however: The untrained-but-resourceful maid had saved the day.

The second such incident occurred when I was working on the chest service at the Minneapolis Veterans Hospital. While assisting Dr. E. Humphreys in a pulmonary lobectomy, I was called to assist with an emergency taking place in an adjacent operating suite. A patient had undergone a lumbar discectomy in the face-down position at level L4-5. The orthopedic surgeon had ventured too deep with his disc forceps and bit a hole in the left common iliac artery as it crossed the vertebra. A near-disaster quickly ensued.

When two of us junior residents arrived in the ortho suite, the patient had been rolled onto his back by order of Dr. "Yosh" Sako, a vascular surgeon, who had responded to the same frantic call by the panicked orthopedic surgeon. By then, the patient was in shock and near cardiac arrest. Sako, who had honed his training in a MASH hospital during the Korean War, knew he had no time to spare. Making a swift incision in the belly from xiphoid to pubis, Sako entered a sea of blood. He thrust his hand into the pool to the exact area where the common iliac crosses the vertebra. Feeling the ejection of blood from the still-pumping vessel, he used his thumb and forefinger to obstruct the flow. Restoring the integrity of the vessel was right up Sako's alley. Fortunately, the patient survived, thanks to the quick thinking of a brilliant and daring surgeon.

The untrained-but-resourceful maid had saved the day.

The third case involved Claude R. Hitchcock, chief of surgery at Minneapolis General Hospital. In 1957, three young brothers, the O'Kasicks, were involved in a shootout with the Minneapolis Police following a botched armed robbery. The two older brothers were killed in the shootout, but the youngest, Jimmy, had been shot in the chest and was still alive. By the time the ambulance arrived, Hitchcock and some of the surgery residents were waiting in the Emergency Room (I was already scrubbed in on another case).

Orderlies and residents wheeled the dying boy to the elevator and into the fourth-floor operating suite. Dr. Egon Marte intubated him as Hitchcock and the operating room nurses tore off his bloody clothes and prepped his chest.

Hitchcock did not know what damage the bullet had done inside the chest, only that he might be able to fix it once inside. As he opened through the left seventh intercostal space, he discovered the chest cavity was full of blood and the pericardium was distended yet spurting blood. When it was incised, blood gushed from a hole in the left atrium. Hitchcock thrust his finger into that hole, stopping the hemorrhage. Blood was pumped in intravenously, and the boy's blood pressure rose. With the bleeding controlled, Hitchcock closed the hole in the heart. Jimmy survived—only to die weeks later by his own hand.

In each of these cases, the patient survived mortal injury because of the grace of God and the superb acumen of two outstanding surgical pioneers and one plucky and resourceful janitorial aide. Their heroics were successful because they made a quick-but-accurate assessment of the situation at hand and applied a ready, simple solution to stanch the bleeding. **MM**

Harrison Farley is a retired surgeon from St. Paul.

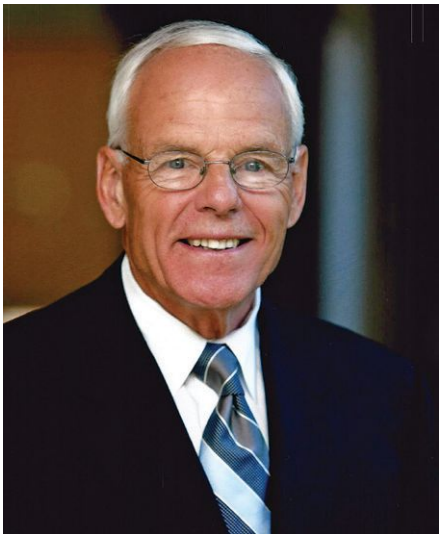
*The solution and salvage of the patient's limb in this trying circumstance led to a procedure obviating the infected graft by the construction of a profunda femoris-popliteal shunt using a saphenous vein. The Teflon graft was then removed and the infection cleared. The procedure was described in the March 1962 issue of the *Annals of Surgery*.

PRESIDENTS FROM THE PAST

Former MMA leaders discuss health care's evolution

An MMA president's tenure is brief. He or she is inaugurated and, in what seems like the blink of an eye, hands over the presidential medallion to a successor 12 months later. When their term ends, they don't stop caring about issues that affect their profession.

We recently discovered that as we spoke with four who led the MMA more than two decades ago: Robert Christensen, M.D. (1989); Richard Tompkins, M.D. (1990); Thomas Stolee, M.D. (1991) and Stuart Hanson, M.D. (1992). All have remained busy in retirement. Some are still active in the MMA; others are just active. Christensen serves on the MMA Foundation board, teaches English as a second language to middle school and high school students in Minneapolis, and is involved in his parish's Outreach to the Poor program. Tompkins splits his time between Florida and Minnesota. Stolee also spends part of his year in the Sunshine State, where he has served on several medical boards. Hanson serves on the admissions board of the University of Minnesota Medical School, volunteers with a group that studies workplace behavior in medicine and advocates on behalf of Physicians for a National Health Program.



Robert Christensen, M.D.
1989 MMA President

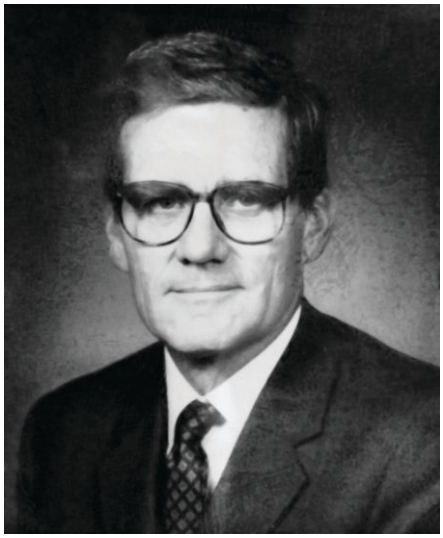
Technology "is creating real hope for more effective, efficient, safer and less-costly systems of health care delivery."

ROBERT CHRISTENSEN, M.D.

Some things changed

Plenty has changed over the past 20-plus years, the former presidents acknowledge. Some of it is good. For example, Christensen says technology "is creating real hope for more effective, efficient, safer and less-costly systems of health care delivery."

Tompkins agrees, noting that physicians today can make more accurate diagnoses less invasively than when he was practicing. They also have better treatment options, and he is encouraged by what is on the horizon. "There is increasingly better understanding of the genetics of diseases that will allow therapies to be developed for individual patients, making them more effective with fewer side effects," Tompkins says.



Richard Tompkins, M.D.
1990 MMA President

"I think most of the issues I dealt with are still around—just in a different form."

RICHARD TOMPKINS, M.D.

They are less enthusiastic about some of the changes that have happened. Stolee is concerned that third-party payers and their reimbursement policies have come between physicians and their patients. He says when "Wall Street discovered health care was a cash cow," the profession became more of a commodity than a service. He believes payment is something that should be discussed between a physician and the patient, except in cases where there is a catastrophic event. "If payment comes from a third party," he says, "the patient couldn't care less" and is less engaged in the cost decisions. The result is burgeoning health care costs.

Hanson sees fee-for-service payment as contributing to our high health care costs. Fee-for-service has led to "overtreatment

of the overinsured and undertreatment of the underinsured." He says he is hopeful that the Affordable Care Act, which ties payment to quality, will create a system that "is more beneficial for the population."

"We must figure out a way to pay for quality rather than quantity of medical care," Tompkins adds.

Others stayed the same

Not everything has changed, though, the former presidents say.

"I think most of the issues I dealt with are still around—just in a different form," Tompkins says. For example, there's the issue of access to health care. Back in the early 1990s, the MMA worked to expand health care coverage to the working poor who earned too much to qualify for Medicaid, helping to create what became known as MinnesotaCare.

Stuart Hanson, M.D.
1992 MMA President

"We should embrace [the expansion of mid-level providers]; we shouldn't resist it. Move forward and promote it."

STUART HANSON, M.D.

"I spent many days with the state Senate, House and governor presenting the views of the MMA," Stolee recalls. "We were very much in favor of the program to assist the underinsured and uninsured," he notes, adding that the MMA was strongly opposed to the 2 percent tax on health care services that was instituted to help fund MinnesotaCare. The tax is now set for repeal at the end of 2019.

Two decades later, the state is still working to provide health care coverage to all Minnesotans. "I think we've gone backwards," says Hanson who still believes this is the biggest issue in health care today.

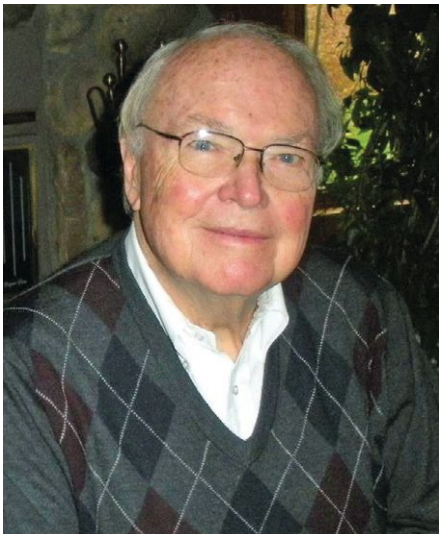
The four mentioned other concerns that are still around, including health disparities among various sectors of the population, the consolidation of medical practices and hospital systems, and tobacco and drug addiction.

If they were president now

We asked the four former presidents what issues they'd tackle if they found themselves at the helm of the MMA again.

Stolee says he would focus on engaging physicians to help fight for the profession. "Physicians feel incorrectly that their employers will take care of their problems and represent them to the public and government," he says. "Physicians have to represent themselves as physicians, and the only effective way is through organizations with their colleagues." He says he is dismayed by the number of local component medical societies that are folding.

Christensen would like to see more of a focus on disease prevention. "What are ways organized medicine can facilitate more real and lasting chronic disease prevention through foundations, social service agencies and schools? Our future societal need for acute health care intervention should be viewed, largely, as a failure of our disease-prevention programs."



Thomas Stolee, M.D.
1991 MMA President

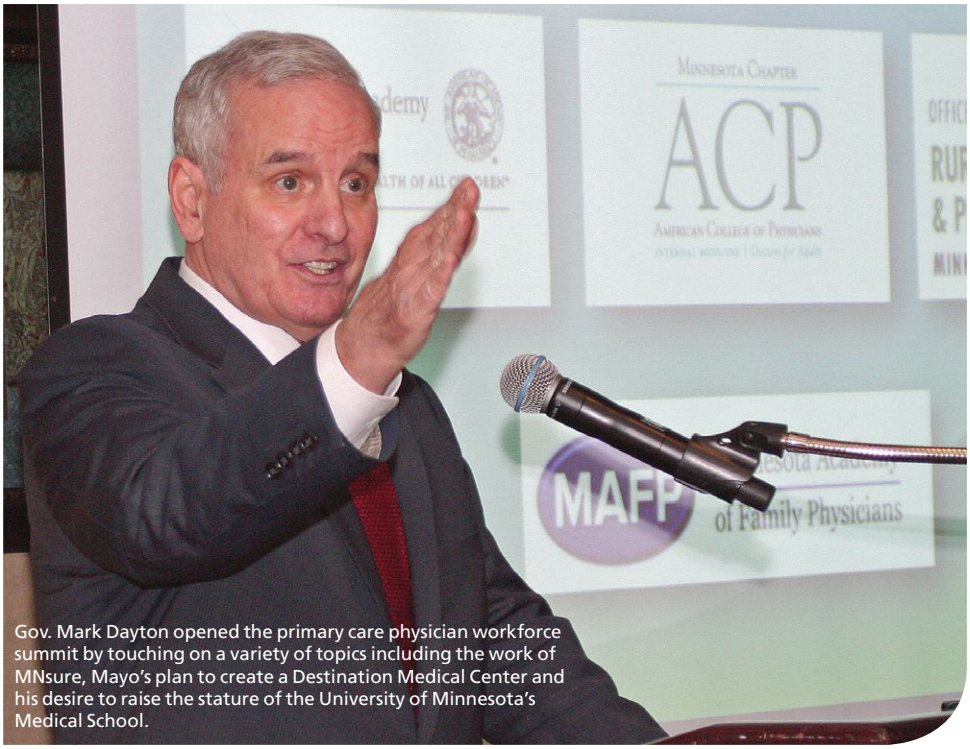
"Physicians have to represent themselves as physicians, and the only effective way is through organizations with their colleagues."

THOMAS STOLEE, M.D.

Tompkins says he would focus on increasing the number of physicians and nonphysician practitioners in order to address the primary care shortage. "These two groups need to work better together and cease being in competition with each other," he says. "The primary concern of medicine should be the patient."

Hanson agrees. Mid-level providers can meet the need, "but physicians are not supporting [expanding the scope of their practice]," he says. "We should embrace [the expansion]; we shouldn't resist it. Move forward and promote it." He also says the MMA should be looking more closely at a single-payer system. "We have public education. We have public support for food and housing. Why not [public] health care?"

News briefs



Gov. Mark Dayton opened the primary care physician workforce summit by touching on a variety of topics including the work of MNsure, Mayo's plan to create a Destination Medical Center and his desire to raise the stature of the University of Minnesota's Medical School.

Physicians tackle primary care physician shortage at summit

Nearly 70 physicians and other people gathered in Minneapolis in November for the MMA's Primary Care Physician Workforce Summit to discuss possible solutions, get educated about the current state of the shortage, and examine ways to transform physicians' practices in order to reinvigorate primary care.

During the first general session, audience members voted on a variety of questions. Nearly 60 percent said the greatest barrier to expanding Minnesota's primary care physician workforce is the fact that they're paid much less than other specialists. More than 48 percent said they think physician assistants and advanced practice registered nurses play a "very important" role in meeting the demand for primary care services. And, nearly 55 percent said they would encourage their child to become a primary care physician.

In his talk, "A New Day for Primary Care: Will Medical Schools Deliver the Goods?" keynote speaker Scott A. Shipman, M.D., M.P.H., said he anticipates a bright future for primary care "provided physicians are bold enough to acknowledge the need to change."

Shipman, the director of primary care affairs and workforce analysis for the Association of American Medical Colleges, discussed four ways to address the projected shortage of primary care physicians: train more, find others to do the work, reduce the number retiring or leaving practice, and eliminate inefficiencies.

He noted that although new medical schools have opened and others have expanded, it hasn't led to a significant increase in graduates going into primary care, especially in rural communities. "The medical school expansion isn't enough," he said.

Echoing Shipman's remarks, Paul H. Rockey, M.D., M.P.H, noted in his closing address that many pieces have to fall in place to solve the primary care physician shortage, including more general medical education positions, more training venues and new models of health care delivery.

Rockey, a scholar in residence with the Accreditation Council for Graduate Medical Education, provided the audience with a variety of sobering statistics: The country spends $2.6 trillion on health care each year; GME is less than 1 percent of that amount; and Minnesota ranks 46th in terms of how many of its GME grads become primary care physicians (15 percent).

In addition to Shipman's and Rockey's addresses, the event featured a general discussion on the economics and business side of primary care, and breakout sessions on the current state of medical education in Minnesota and primary care practice transformation.

Medical staff takes case to state Supreme Court

The Minnesota Supreme Court agreed in October to review the case of Avera Marshall Medical Center Staff vs. Avera Marshall Regional Medical Center.

The MMA, AMA, Minnesota Academy of Family Physicians (MAFP) and the Minnesota Chapter of the American Academy of Pediatricians will act as amicus counsel in the case. Oral arguments are not likely to take place until 2014.

Last July, a three-judge Minnesota

Court of Appeals panel affirmed a district court's ruling that the Avera Marshall Medical Center staff is not a legal entity with the capacity to sue. In addition, the panel upheld the lower court's ruling that bylaws do not constitute a contract between the medical staff and the hospital.

In August, the medical staff decided to petition the state Supreme Court to hear the case. The Supreme Court elected to take it up because it determined the case presented important questions of law that should be resolved.

The MMA and AMA jointly filed an amicus brief earlier this year. They were supported by the American Osteopathic Association, the American Academy of Family Physicians and MAFP. An amicus brief is filed by a party not directly involved in a suit but that has an interest in the outcome of the litigation. It provides helpful information to the court in its consideration of the issues raised by the parties and usually urges the court to reach a decision favorable to the interests of the amicus.

For more details about the physicians involved in the case, read "Standing Up for the Staff" in the November 2013 issue of *Minnesota Medicine*.

Choosing Wisely survey shows physicians feel responsible about testing

Minnesota physicians say they have a "great deal of responsibility" for helping patients avoid unnecessary tests and procedures, according to a recent survey conducted by the MMA.

The responses from 254 randomly selected practicing physicians indicate the biggest reason why physicians don't talk to patients about avoiding unnecessary care is lack of time for a meaningful discussion. This is followed closely by the need to keep patients happy.

The MMA conducted the poll in September as part of its work with Choosing Wisely. It received a grant last spring from the American Board of Internal Medicine Foundation, which created the initiative in 2012. The goal of Choosing Wisely is to encourage physicians and patients to think and talk about medical tests and procedures that may be unnecessary and, in some cases, cause harm.

"The most helpful factor in this initiative is getting the public informed of the problem of unnecessary medicine," wrote one respondent. "This makes patients receptive and makes physicians feel more confident in standing firm."

The survey also found:

- 35 percent of respondents said patients ask for unnecessary tests or procedures several times a week
- 73 percent said they always or almost always talk to patients about why they shouldn't have a test or procedure they deem as unnecessary.

Respondents also indicated that 44 percent of the time, patients follow the advice of their physician when they suggest avoiding a test or procedure.

For more information on Choosing Wisely, visit the MMA website.

MMA meets with specialty society leaders

In an effort to collaborate more closely with the state's specialty societies, MMA leaders have begun meeting with specialty society presidents to discuss advocacy efforts.

"We wanted to get the group together a few times before the 2014 Legislative session to strategize how we can better work together on issues that impact Minnesota physicians," says MMA CEO Robert Meiches, M.D. "We're off to a good start."

The group's goals include connecting association leadership, understanding advocacy and legislative priorities, and discussing options for future collaboration.

All specialty societies have been invited to participate. The first two meetings included representatives from the Minnesota Academy of Family Physicians, the Minnesota Chapter of the American Academy of Pediatrics, the Minnesota Chapter of the American College of Emergency Physicians, the Minnesota Chapter of the American College of Physicians, the Minnesota Medical Directors Association, the Minnesota Orthopaedic Society, the Minnesota Psychiatric Society, the Minnesota Section of the American Congress of Obstetricians and Gynecologists, and the Minnesota Society of Neurologic Sciences. Representatives from the field of urology attended as well.

Medical students select leaders for 2014

Students from Minnesota's three medical schools gathered in Minneapolis in October to elect the 2014 leaders for the MMA Medical Student Section (MMA-MSS).

They include:

- **Sagar Chawla**, a second-year medical student at the Mayo Medical School, re-elected as chair
- **Mariaha Cobb**, a third-year student at the University of Minnesota Twin Cities Medical School, re-elected as vice chair

PHOTO BY STEVE WEWERKA

- **Katherine Holten**, a second-year medical student from the University of Minnesota Twin Cities, elected to serve as the group's 2014 delegate. This position represents the MMA-MSS at the MMA Annual Meeting and serves as the primary spokesperson for the MMA-MSS on the floor of the AMA House of Delegates and at all AMA-MSS meetings
- **Courtney Moors**, a second-year medical student from the University of Minnesota Duluth Medical School, as secretary
- **Thomas Baron**, a second-year medical student from the University of Minnesota Duluth, as member-at-large
- **Eric McDaniel**, a second-year medical student from University of Minnesota Duluth, was elected to serve a second term as the MSS appointee to the MMA Board of Trustees.

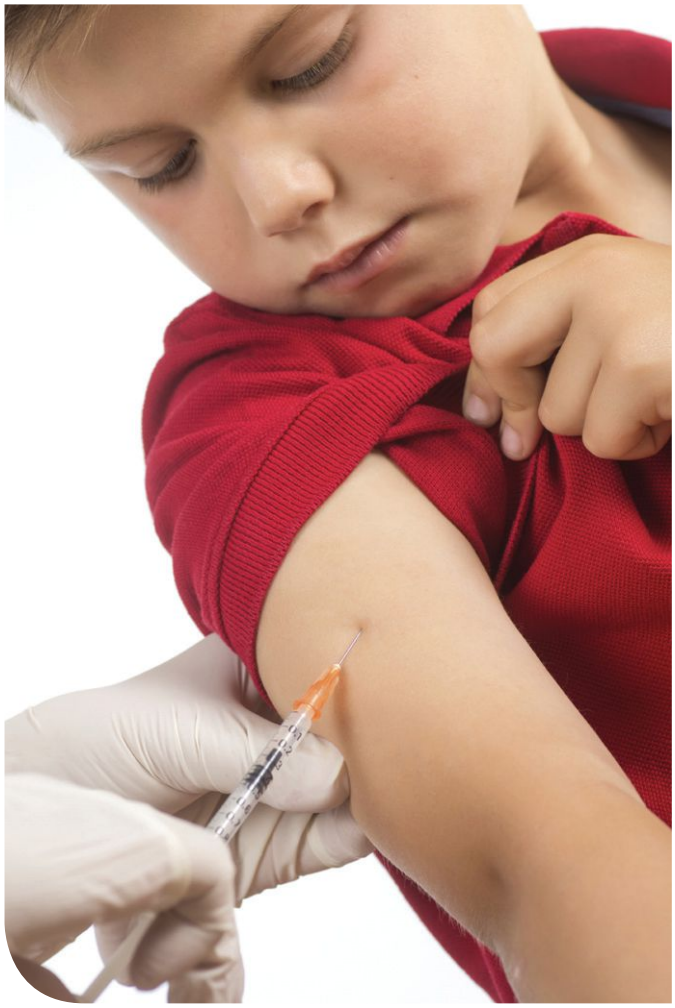
Minnesota Prescription Monitoring Program expands

On November 1, the Minnesota Prescription Monitoring Program (PMP) joined an interstate network that allows Minnesota-authorized prescribers, pharmacists and their delegates to search for patient profiles in multiple states.

The new service connects Minnesota, Arizona, Colorado, Illinois, Kansas, Michigan, South Dakota and Wisconsin. More states will be added.

When a Minnesota user logs onto the Minnesota PMP database, they will have the option of doing a multi-state query. Because of differences in state laws and regulations regarding who can access data, states may not be able to provide query results to all Minnesota users. A prescriber or pharmacist will need to query databases in Wisconsin, Illinois, South Dakota and Arizona, for example.

Questions about the new functionality should be directed to the Prescription Monitoring Program at 651-201-2836 or minnesota.pmp@state.mn.us.



New immunization rules to kick in next September

The Minnesota Department of Health (MDH) has adopted changes to the state's immunization requirements for children in child care, early childhood programs and schools. The new rules, which apply to children enrolling in programs beginning September 1, 2014, bring Minnesota's immunization law in line with current national recommendations.

Among the new rules are:

- Hepatitis A and B vaccination for children enrolling in child care or early childhood programs
- Replacement of the current seventh-grade tetanus-diphtheria (Td) vaccination with one that also includes pertussis (Tdap)
- Meningococcal vaccination for secondary school students, beginning in seventh grade.

The new rules do not change the medical exemption or eliminate the option for parents to decline any or all vaccines for conscientious reasons.

From now until September 1, 2014, immunization program staff at MDH will work with various stakeholders to make sure

News briefs

(continued from previous page)

parents are aware of the new requirements and have ample opportunities to make sure their children are current on their immunizations.

The changes are recommended by the Centers for Disease Control's Advisory Committee on Immunization Practices and other medical and public health groups. They are supported by the Minnesota Chapter of the American Academy of Pediatrics, MMA, Minnesota Academy of Family Physicians, Children's Hospitals and Clinics of Minnesota, Minnesota Child Care Association, Minnesota Licensed Family Child Care Association, March of Dimes and local public health agencies.

Members making a difference

Former MMA president **Patricia Lindholm**, M.D., a family physician in Fergus Falls, has been named to the Minnesota Board of Medical Practice to represent Minnesota's seventh Congressional district. Her appointment was effective October 30 and she will serve until January 4, 2016. Lindholm was endorsed by the MMA.

Christopher Johnson, M.D., of the Emergency Physicians Professional Association, has been named to MNsure's health industry advisory committee. Johnson, who works at Park Nicollet Methodist Hospital in St. Louis Park, is the committee's lone physician member.

The American College of Emergency Physicians recently recognized **Daniel G. Hankins**, M.D., FACEP, with the Outstanding Contribution in EMS Award at its annual meeting in Seattle in mid-October.

Dionne Hart, M.D., defended the medical profession in a column in the *Chicago Tribune* in October.

MMA in action


Brian Strub


Kathleen Baumbach


Edwin Bogonko, M.D.


Terry Ruane

Brian Strub and **Kathleen Baumbach**, the MMA's managers of physician outreach, and Twin Cities Medical Society (TCMS) President **Edwin Bogonko**, M.D., visited the recently opened Clarus Dermatology clinic in St. Anthony Village in October. They met with founding partner Neil Shah, M.D., to discuss the challenges and opportunities of opening an independent practice and the ongoing need to educate physicians and future physicians on the business aspects of practicing medicine.

Terry Ruane, the MMA's director of membership, marketing and communications, and **Mandy Rubenstein**, manager of physician outreach, met with leaders at Sanford Health Bemidji in late October.

In November, **Dave Renner**, the MMA's director of state and federal legislation, and Rubenstein gave a presentation on the Affordable Care Act at Sanford Health in Detroit Lakes. The duo also met with the Clay-Becker Medical Society.

In October, MMA President **Cindy Firkins Smith**, M.D., took part in a radio program on the relationship between the American Society for Dermatologic Surgery and state dermatological societies. She also met with the Minnesota Academy of Family Physicians board. In addition, she and Renner met with the Rice Memorial medical staff in Willmar to discuss the role of physicians in health care policy. She also served as emcee at the MMA's Primary Care Physician Workforce Summit in November.

Juliana Milhofer, MMA policy analyst, spoke at the Minnesota Hospital Association's Physician Leadership Council meeting regarding the MMA's primary care physician workforce efforts.

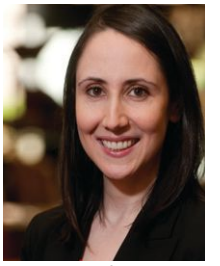
Janet Silversmith, the MMA's director of policy, and Rubenstein met with physicians at Altru in Crookston in mid-November. Silversmith also gave an update on the Affordable Care Act to staff at St. Francis Hospital and presented an inside look at the Minnesota health insurance exchange at the Stearns-Benton Medical Society's annual meeting in November.

The MMA and TCMS hosted a lunch-and-learn program October 29 on the University of Minnesota Medical School, Twin Cities campus. Speakers discussed graduate medical education and residency programs as well as what medical students can do to advocate for continued funding of medical education.

The MMA displayed information on the Choosing Wisely project at the Minnesota chapter of the American College of Physicians' annual meeting in November.


Dave Renner


Cindy Firkins Smith


Juliana Milhofer


Janet Silversmith

VIEWPOINT

We can do this

For a few seconds, I held my breath. Primary Care Physician Workforce Expansion Advisory Task Force Chair Jeremy Springer, M.D., was running participants through a brief questionnaire MMA staff put together at last month's Primary Care Physician Workforce Summit. He had just asked: "Would you encourage your child to become a primary care physician?" and I wasn't sure how my colleagues would answer.

I have been hearing from many in family medicine, my field, that being a primary care physician is not what it's cracked up to be. The hours are too long, the time with patients too short, the administrative burdens too many, the pay too low. These and other factors contribute to a high rate of burnout among primary care physicians, and they are making my colleagues question whether they would advise young docs, be it their own offspring or not, to follow their career path.

I know how I answered; I quickly voted "Yes!" I find great joy working with my patients, seeing them regularly whether it's for a yearly physical or the occasional illness. I think it's a great field and eagerly encourage medical students to pursue it.

But how would my colleagues respond? Springer paused a few seconds before revealing the results, adding to my anxiety. Fortunately, 55 percent agreed with me and answered yes; this happened to be the exact percentage of primary care physicians in the crowd. (I hope they all voted yes.)

I'm encouraged by this. We all know that the primary care physician shortage is a huge concern. We need enough physicians to serve the people who will gain access to health care coverage as a result of the Affordable Care Act. With enough doctors, we can help patients avoid expensive chronic conditions, which will lead to a healthier Minnesota.

But expanding the primary care physician workforce is not going to be easy. The physicians at the summit said two major barriers stand in our way—lower income compared with other specialties (57 percent of respondents chose this) and the negative perception of primary care (22 percent).

So how are we going to do it? Those who responded to our questions said we should work to address negative perceptions of primary care among medical students, advocate for an increase in primary care residency slots and work to improve primary care income.

Another option for resolving the projected shortage is expanding the roles of physician assistants and advanced practice registered nurses. I've written before on the MMA's position concerning mid-level providers' scope of practice. For the safety of the patient, we favor physician-led team-based care. Clearly, attendees at our summit are more open to PAs and APRNs taking on more duties. Nearly all agreed they have an important role in meeting the demand for primary care services. Whether APRNs practicing independently is a solution to the shortage is unclear. This topic will certainly receive more scrutiny during the 2014 legislative session.

Nevertheless, I am encouraged. If the group that gathered for the summit in Minneapolis is any indication, health care in Minnesota will be just fine. We have passionate physicians out there who are willing to roll up their sleeves and work to solve the problem.

PHOTO BY STEVE WEWERKA

Dave Thorson, M.D.
MMA Board Chair

With enough doctors, we can help patients avoid expensive chronic conditions, which will lead to a healthier Minnesota.

FINDING THE TIME

The general practice of Thomas Sadler Roberts (1858-1946)

BY SUSAN LEAF

The cry rolled off his pen sometime after midnight. "I am now so desperately busy into professional work that I haven't had time to eat or sleep," Dr. Thomas Sadler Roberts wrote to a friend in 1898. "I do all my bird work at night—normally between 11:30 and one o'clock. It is now the 'small hours' and I shall have to [leave off] to prepare for a busy day tomorrow."[1] Frustration was building in a man blessed with a buoyant personality and seemingly unlimited energy.

Roberts, who practiced medicine in Minneapolis from 1886 to 1915, was in a bind. Possessed by a driving passion for birds that had propelled him since youth, he was now monopolized by a general practice. He maintained an exam room in his home at 1603 Fourth Avenue South in Minneapolis. Office hours were from 2 to 5 p.m. every day. Mornings were spent making house calls by horse and buggy. He also stopped by St. Barnabas Hospital most days—he had taken over the chief of staff duties from his preceptor, Amos Abbott, in 1892.

Evenings were also likely to be spent doing house calls, sometimes until midnight. He often didn't dine until 9 p.m., long after his family had eaten. His wife was concerned about the stress this demanding schedule placed on her husband. Even though both of them were involved in community efforts to treat lung disease, particularly tuberculosis, she urged him to take up smoking.[2] She thought it might encourage him to linger after supper. Roberts developed a taste for fine Cuban cigars.

BELL MUSEUM OF NATURAL HISTORY, UNIVERSITY OF MINNESOTA

Dr. Thomas Sadler Roberts (right) with his field assistant and quasi medical partner, Dr. Leslie O. Dart, at the Long Meadow Gun Club on the Minnesota River near Fort Snelling in 1900.

Roberts loved the personal relationships he had with his patients. He was never too busy to talk about birds during house calls, and he later observed that he often served as legal, spiritual and financial advisor to some of them.[3] Roberts' zest for life was not fully satisfied by medicine, however. An extremely social person, he was a member of the Minneapolis Club, the Long Meadow Gun Club, the Cotillion Club (he learned to waltz in his 50s) and the Minikahda Club—although he seldom had time for the links.

His membership in the Minneapolis Club in some ways facilitated his medical practice. He was first approached to join the exclusive club in 1900. His childhood friend Charles Bovey of the Washburn-Crosby Company (the forerunner to General Mills) wrote to inform him that Roberts was "badly wanted" in the new organization.[4] Roberts declined, saying he was too busy. But later in life, after he ceased to have a conventional practice, he did join and used the club's rooms as *de facto* exam rooms, meeting patients for lunch and to talk about their medical concerns.

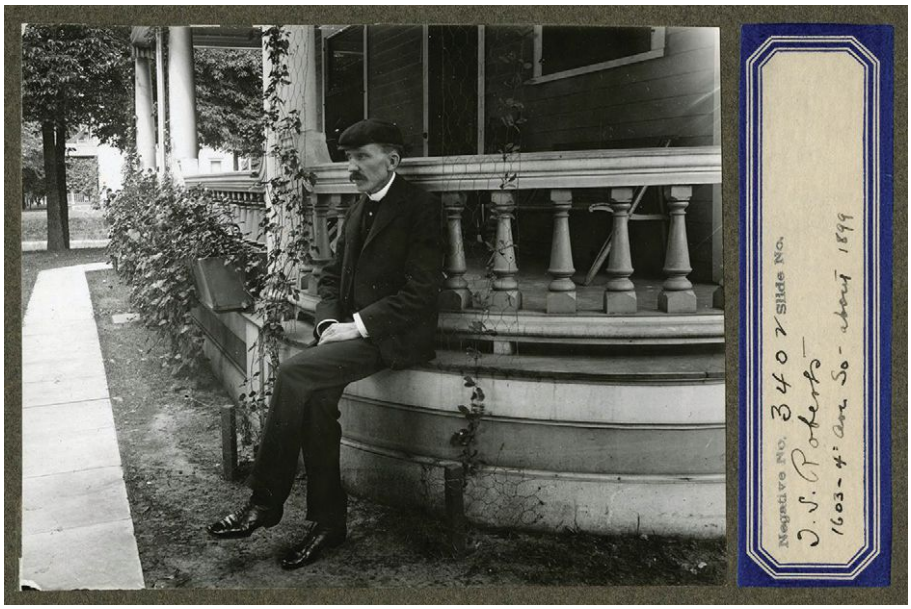
A love of birds

Roberts' overwhelming passion, though, was birds. He had kept a bird journal since 1874, the year he turned 16. Back then, Minneapolis was a small village, so quiet that the roar of St. Anthony Falls could be heard throughout town in the quiet of the evening.[5] He tracked Passenger Pigeons as they moved through town, migrating waterfowl that rested at night on the lakes south of the city, horned larks nesting on the prairie surrounding Fort Snelling and the shore birds that congregated near the shallow marshes. He shot birds in those days, identified them and preserved his specimens. By the 1890s, he had become the leading ornithologist in Minnesota.[6]

Roberts had long dreamed of writing a comprehensive book on Minnesota's birds. In 1892, when his practice was burgeoning, the Minnesota Natural History Survey published what was purported to be the official list of state birds.[7] Roberts found a number of mistakes in the report, done by a Minneapolis homeopath, and was determined to correct them.

In 1898, he purchased a Premo long-frame camera with a Bausch and Lomb lens for the express purpose of photographing birds. That spring, he practiced with it, photographing his children, the clinic secretary in front of the door to his office, and the horse and buggy that carried him on rounds. He fiddled with exposure times, developing technique and chemicals, and papers of different weights. His lab became a dark room and his clinic secretary an expert in producing magic lantern slides for bird talks. But his practice still monopolized his time.

"[I] am hoping to do some bird photography this spring and summer," he wrote to the same friend, "but as most of my plans miscarry for lack of time I am afraid this may all be anticipation and very little reality."[8] He added, "If you have ever had any close acquaintance with a physician you must know how entirely he is at the mercy of circumstances and to what a very limited extent he can control his time. I have been closely occupied night as well as day … birds and all else … has had to be given the go-by …"[8]



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Roberts in front of his Minneapolis home, circa 1889. The photo was taken with his own camera.

A defining event

During the following years, Roberts managed to carve out time for wildlife photography despite his pressing schedule. He traveled to Heron Lake in southwestern Minnesota to photograph an immense colony of Franklin's Gulls. In 1900 and 1901, he went to what is now the Lake Agassiz National Wildlife Area in northwestern Minnesota to record on film the desolate expanse of tamarack bog and wet prairie. He chased Prothonotary Warblers along the Mississippi floodplain and breeding warblers on Lake Vermilion. His one- to two-week furloughs were made possible with the help of a young doctor who had interned under him at St. Barnabas Hospital and covered his practice.

But his absence was not without consequence. Usually, repercussions were relatively minor: "I got home a few days ago," he noted, "and have been literally snowed under ever since …."[8] But in 1900, while he was up north photographing young Broad-winged Hawks, a serious incident occurred at St. Barnabas, where Roberts was still chief of staff. A man was admitted to the hospital with smallpox. The case was initially diagnosed as typhoid fever. The admission was a breach of protocol, as hospitals did not care for patients with contagious diseases in 1900. The mistake was realized within 24 hours, and the patient was whisked away to the city's quarantine hospital, but not before two nurses were infected. Roberts received an irate letter from the city's quarantine officer, dressing him down for the lapse.[9]

Would Roberts' presence have changed the outcome? It is hard to say. Soon afterward, Roberts resigned the unpaid chief of staff position, citing lack of time for the job.[10] "I get so buried in … my business that it seems as though I [do] not have a single moment for anything else and the days, weeks and months go by before I realize that so much time has passed. Never before have I been so busy and had so many serious, anxious things in hand," he noted.[11]

Breaking point

As Roberts' practice expanded, obstetrics came to play a larger role. Many of his patients were among Minneapolis' wealthy elite. But as joyful as his obstetrics experience was, he also saw it as his ball and chain. "I am hoping to be able to devote all of next June to bird photography, but if it is like most years, a few 'baby cases' that cannot be deserted will loom up before long and my hopes will be dashed."[12] He had known many of his wealthy patients since childhood, and they were still friends. He was reluctant to turn such cases over to someone else.

The tension grew. The frenetic pace of Roberts' practice was unsustainable. He

took time off in 1905 to retreat in exhaustion to Gulfport, Mississippi. He returned to his practice, but nothing had changed. In 1913, he suffered another breakdown and spent a month recovering in Bermuda. His wife, who stayed behind with the children, was deeply concerned.[13] Jennie Roberts hoped that a month would restore him but "did not expect [him] to recover in so short a time from years of overwork." Perhaps the depth of the crisis is revealed in what was missing from his communications home: he didn't mention the bird life of the subtropical paradise.

A second career

Roberts was in his 50s, and the Minnesota bird book he had dreamed for so long of writing remained unwritten. Finally, he had had enough. In 1915, he quit his practice. He agreed to continue seeing about 25 families who kept him on retainer. Then he took an unpaid position as associate curator at the University of Minnesota's natural history museum and agreed to teach the school's first ornithology course. He sold the duplex that had served as his office and home and bought another one in south Minneapolis. Rent from the lower apartment supplemented his savings for living expenses. His wealthy patients raised the money to fund his summer research.

At age 57, Thomas Sadler Roberts began his second career. He rolled up his sleeves and went to work on the museum. He tossed out moth-eaten, bedraggled specimens and oversaw construction of dramatic, artistic dioramas of white-tailed deer, woodland caribou and beavers. He launched the ornithology class. Its members initially were women studying to be teachers. They caught his passion for birds and went out to schools in rural Minnesota, passing on a love of birds to their students.

It took a decade, but Roberts wrote his book, *The Birds of Minnesota*, a two-volume tome with records reaching back to the state's early history. His medical secretary from the 1890s organized the voluminous data that Roberts and his various correspondents had been amassing for 60 years. *Birds* received wide acclaim, and Roberts received the coveted Brewster Medal of the American Ornithologists' Union in 1938.

Roberts was in his 80s when he oversaw construction of a new natural history museum, one that would eventually bear the name of its benefactor and one of Roberts' patients, James Ford Bell.

Roberts never officially retired from medicine or from the university. He remained an active member of the Minnesota Academy of Medicine and served as a reporter of Minnesota bird life for *Audubon* magazine until just before his death in April of 1946. **MM**

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Photograph of Catbird on nest taken by Roberts around 1899.

Susan Leaf is a freelance writer living in Center City.

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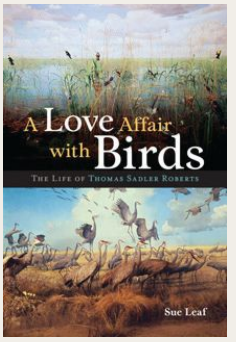

A Love Affair with Birds (University of Minnesota Press, 2013) by Susan Leaf is the first full biography of Minnesota physician, bird enthusiast, author, curator, educator and conservationist Thomas Sadler Roberts. Roberts practiced in Minneapolis at a time when birds were abundant and house calls were made by horse and buggy. His two-volume book on birds, *The Birds of Minnesota,* was widely acclaimed.

Leaf is the author of two other books, *Potato City: Nature, History and Community in the Age of Sprawl* (Borealis Books, an imprint of the Minnesota Historical Society) and *The Bullhead Queen: A Year on Pioneer Lake* (University of Minnesota Press), which was a finalist for a Minnesota Book Award.

BACK TO THE FUTURE

Minnesota's Rural Health Workforce Shortages

BY JENNIFER GUNN, PH.D.

With the Affordable Care Act's promise of health insurance coverage for 34 million more Americans comes the question of whether the medical establishment has the capacity to provide care to all who need it. Concern over whether the United States has enough primary care physicians, especially in rural areas, isn't new. Since the end of World War II, the country has been contending with shortages. This article provides an historical perspective on the shortage and efforts to alleviate it in the United States and Minnesota.

The Affordable Care Act (ACA) has generated a slew of projections about a coming shortage of physicians in the United States. Some say as many as 124,000 more will be needed to care for the 34 million Americans who are expected to gain insurance coverage as a result of the law,[1] exacerbating what has been described as a "long-standing and critical shortage of rural and primary care physicians."[2] These predictions echo concerns that have been expressed since World War II. Each time the issue of a physician shortage came up, it was in response to new programs that increased demand for medical care and concern that rural and poor urban areas would be left with too few doctors. Medical leaders in the late 1940s—another period of heated political debate over national health insurance—worried that disparities in medical care availability between rural and urban areas would turn the tide of popular opinion in favor of a compulsory health insurance plan proposed by President Harry Truman.[3]

In Minnesota, a series of local and federal initiatives to address the rural physician shortage were implemented between 1946 and the mid-1970s. Although these programs increased the production and retention of doctors in the state, they could not dictate the distribution of physicians. This article looks at the history of efforts in Minnesota to increase the number of and access to primary care physicians in rural areas.

The Post-World War II Boom

By the end of World War II, after more than a decade of economic depression followed by five years of a war economy, the nation's hospitals were outdated, in disrepair and inadequate for meeting the needs of a growing population. The war spotlighted achievements in medical science, such as the development of penicillin, creating new faith in the efficacy and power of medicine. Americans increasingly viewed access to medical care as a necessity and a right. Growing numbers of citizens were becoming accustomed to hospital care made affordable by prepaid insurance plans and the wartime federal Emergency Maternity and Infant Care program.[4,5] Physicians who had been rushed off to war now wanted hospital-based specialty training, and GI Bill benefits made doing a residency economically feasible. All of this contributed to a pent-up demand for new and improved hospitals and expanded medical service.

Providing enough new and upgraded hospitals was beyond the economic capacity of most communities and even most states. With support from the usually anti-government American Medical Association, Congress passed the Hill-Burton Hospital Survey and Construction Act in 1946, channeling an initial $375 million in federal funds over five years into hospital construction. Later, the program was amended to include funds for construction of outpatient clinics, public health centers, and long-term care and rehabilitation facilities.[5,6] Hill-Burton required matching funds from states and localities based on the state's per capita income. Minnesota received more than $38 million in federal aid from 1948 through 1962 for construction of 117 health care facilities costing $124.3 million.[6,7]

Just as important was the expansion of Blue Cross and other commercial pre-paid hospitalization plans. Nationwide, the number of Blue Cross subscribers grew from 700,000 to 20 million between 1937 and 1945; by 1945, an estimated 40 million Americans had some sort of health and accident insurance.[5] In 1947, the Minnesota Medical Association (MMA) developed a Blue Shield pre-paid plan to cover doctors' bills. Blue Shield did not fully cover all

physician services, but the Minnesota plan was more comprehensive than plans in many other states. The framers recognized that because 50% of the state's population lived in rural areas and because Workmen's Compensation laws did not cover farmers, the plan would have high utilization rates in outstate areas.[8]

Additional hospital capacity and the ability to pay for care through insurance required additional health care personnel, especially doctors. Initially, Minnesotans did not appear to have been swept up in the panic over a shortage of rural physicians after the war, perhaps because the doctor-to-population ratio in the state exceeded that of most other rural states. As late as 1963, Minnesota ranked 12th in the United States in terms of physician supply, having 145 doctors per 100,000 population (about 1 for every 690 people), although that ranking dropped to 23rd when interns and residents were subtracted. Neighboring South Dakota ranked 49th with 73 doctors per 100,000 population.[9] Isolated semi-rural Minnesota counties with at least one town of 2,500 or more actually had a higher ratio of physicians per capita than the state as a whole.[10]

The University of Minnesota Medical School did increase its class size in 1948 and 1949 to an average of 125, but that was in response to demand from qualified applicants as much as to shortages in "certain areas."[11] Available hospital residency positions expanded even more rapidly, from 66 before the war to 217 in 1946. That number was still inadequate to meet demobilized physicians' demand for specialty training.[12] The desire for specialty over general practice was perhaps a larger portent of problems to come for rural health care in the state than was the absolute number of physicians.

Medicare, Medicaid and Medical Schools

The establishment of Medicare and Medicaid in the mid-1960s again plunged the nation into a new round of anxiety about a shortfall of health care professionals. The University of Minnesota Medical School

Minnesota and the Kansas Rural Health Plan

The status of the physician workforce in Kansas was typical of that in most rural states in the late 1940s. Older physicians who had held down the fort in rural areas during the war were retiring or dying, and returning veterans were not lining up to replace them.

Representatives from small communities deluged the new 32-year-old dean of the University of Kansas Medical School in 1948 with letters seeking doctors. Dean Franklin D. Murphy felt the public pressure and had a brainstorm: He devised the Kansas Rural Health Plan to solve what he defined as the most pressing problem of rural health in his state—a shortage of physicians.

Not surprising, the first part of the three-part $4 million plan called for the expansion and modernization of the medical school, increasing the number of students admitted by 20 per year. The second and third parts were designed to overcome young doctors' concerns about practicing in rural areas, specifically not being able to use the sophisticated techniques they had learned in medical school and their fear of intellectual isolation. Murphy proposed that small towns build and equip medical offices with laboratories and the up-to-date tools newly trained physicians needed and then allow those physicians to pay the town back over time. That way, young doctors need not be discouraged by the prospect of incurring large debts to establish a modern practice in the country. Isolation could be countered by a comprehensive post-graduate medical education program taught on campus under the auspices of the medical school and the state medical society, with courses lasting from two days to several weeks.[1]

The Kansas Rural Health Plan gained attention among opponents of President Harry Truman's compulsory national health insurance plan. Murphy's optimistic claim that small communities could pull together to build clinics and attract doctors fit a medical and political ideology in which the "free enterprise system" could solve the inequities in the health care system without government intervention. One popular magazine touted the plan as Kansas' answer to socialized medicine.[2] But by the time Murphy spoke to the Annual Meeting of County Officers of the Minnesota State Medical Association in 1951, he had already modified his original proposal, acknowledging that local enterprise might not be enough and that government might have to take a role in providing facilities and even subsidizing health care personnel in low-income areas.[3]

A number of states adopted components of the Kansas Rural Health Plan when crafting their own plans. State health departments, medical schools or medical societies set up informal placement services to match physicians with rural towns seeking doctors. The Kansas and Oklahoma medical schools, among others, developed short mandatory rural preceptorships. Wisconsin, Mississippi, Michigan and other states embraced educational loan programs to encourage medical graduates to practice in a rural community for a set period of time in exchange for loan forgiveness.[4] The Minnesota Medical Association established such a rural scholarship program in 1952 and provided personal contacts and counseling in addition to loans in order to place young physicians in rural Minnesota communities.[5]

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asked the Board of Regents for permission to expand its class size. Given the escalating cost of educating a physician and the eight-to-10-year training period required before any increase would be realized, the Regents reacted cautiously. With a grant from the Hill Family Foundation, they studied the need for medical and dental providers in Minnesota, North and South Dakota, and Montana (the three states in the region that lacked four-year medical schools and regularly sent medical students to Minnesota).[10] They concluded that an increase in class size from 150 to 200 students a year was reasonable based on the falling physician-to-population ratio in Minnesota. (At the time, Minnesota-trained doctors were migrating to the sunnier climes of California and the Pacific states at a more rapid rate than physicians trained elsewhere were moving into the North Star state.[13]) The investigators argued that increasing output alone, however, would not meet the demand for medical care. "The prime felt need in Minnesota and the rest of the Upper Midwest is for family practitioners," they concluded.[10] As University of Kansas medical school dean Franklin Murphy, who had proposed a comprehensive plan for increasing the supply of physicians in his state, pointed out in 1951, no technique or plan would distribute physicians to underserved areas if there weren't enough physicians overall [14] (see "Minnesota and the Kansas Rural Health Plan, p. 39). Minnesota not only had to produce more physicians but also had to produce the right kind in order to meet specific needs.

This was consistent with the demands of the Minnesota Academy of General Practice and representatives of a national movement calling for a recommitment to producing primary care providers, particularly for rural practice, through the development of family practice departments in medical schools.[15] The percentage of physicians in general practice in Minnesota had declined from 62% in 1940 to 37% in 1965.[9] Specialists clustered in the cities or large trading centers, leaving a countryside ever more sparsely populated with physicians. Moreover, a number of studies comparing the productivity of general practitioners and specialists demonstrated that general practitioners saw more patients per week and worked more weeks per year than specialists, including primary care specialists such as pediatricians and internists. As the proportion of general or family practitioners relative to specialists in the state declined, more doctors would be required to provide the same amount of care because the specialists who were replacing those generalists would likely see fewer patients and only for a specific problem.[9,16]

The period between 1965 and 1975 can be seen as a time of tremendous investment by private and public agencies in the idea that with information and planning the nation's health care needs could be met efficiently, economically and equitably. The Hill Family Foundation's Upper Midwest Health Manpower study was one of three done in the state between 1965 and 1969; the Minnesota House and Senate commissioned two others exploring the need for a second medical school.[17] At the same time, health planning in Minnesota was being funded through at least three federal programs: the Hill-Burton Act,[18] the 1966 Comprehensive Health Planning Act, and the 1965 Heart Disease, Cancer and Stroke Amendment that established Regional Medical Programs. Millions of dollars poured into the state to support the development of integrated health care systems, especially in underserved areas.[19]

The University Regents acted on the recommendations that came out of the three studies. In 1968, with a dedicated appropriation from the Legislature, the medical school established first a division and then, a year later, a department of family practice and community medicine.[15] In 1970, the medical school class size was increased to 227,[9] with 60 more students added under the federal Physician Augmentation Program.[20]

The medical school and state government responded in other ways to concern about geographic maldistribution of physicians. The Minnesota Senate's study showed that assuring "the people of Minnesota adequate medical care services when and where they are needed" was more important than establishing a second medical school, although they did conclude a second school was needed.[17] The goals for the resulting two-year medical program in Duluth and the new Mayo Medical School in Rochester were to have 65% of the new graduates go into primary practice and to ensure adequate distribution of physicians in underserved areas.

The promises of primary care and geographic distribution proved to be pure rhetoric, as there were no mechanisms to accomplish that. One hope, based on studies of residency that showed a significant proportion of doctors took up practice near where they had done their residency, was that expanding the sites of medical training beyond the Twin Cities would lead to a wider geographic distribution of physicians.[9,17] Planners apparently saw no irony in expanding to Rochester, which already had the highest number of doctors per capita in the state, if not the nation, because of the Mayo Clinic. The University tried to speed up its physician production by establishing an accelerated three-year medical degree program for 45 students per year (about 20% of the class). It also provided an anchor for the neighboring rural states by accepting an increasing number of transfer students and contracting with the University of North Dakota to provide clinical training for 35 students. By the mid-1970s, the third-year medical school class averaged 335 students.[21,22]

Loan Forgiveness and RPAP

Because of a growing population and increasing demand for medical and hospital services, the national concern in the 1960s and 1970s was with an absolute shortage of physicians, especially in primary care. In Minnesota, where the rate of population growth was only half that of the country as a whole, the greatest concern continued to be the distribution of physicians by geography and specialty.

The quantity of physicians could be manipulated through medical school admissions and opening the borders to international medical graduates, but placing doctors in poor rural or urban areas relied

on persuasion. The MMA established a loan program in 1952 in order to encourage medical school graduates to consider rural practice. In 1973, the state replaced the MMA as the funder, offering medical student loan forgiveness after three years of rural practice. The Legislature hoped to place 100 new physicians in rural Minnesota with an investment of $2.5 million in public funds. To encourage the permanent transplantation of young doctors in the countryside, the loan program gradually expanded the definition of "rural" to include communities of up to 6,000 residents and encouraged the establishment of group practices, factors intended to mitigate the isolation and overwork that drove physicians out of rural practice. Realistically, the program's administrators acknowledged that all some communities could hope for was a series of physicians staying long enough to complete their service. Although that discouraged continuity, having physicians come and go was still better than having no physician at all. [23,24]

The University of Minnesota Medical School incorporated family practice prominently in its curriculum and deliberately admitted more students from nonmetropolitan counties. It also added an elective six-week rural preceptorship, similar to ones offered by medical schools in Kansas, Oklahoma and Michigan.[25] These efforts led to a much more ambitious endeavor: the establishment of the Rural Physician Associate Program (RPAP) in 1971. RPAP was an extension of the preceptorship idea. Medical students were placed in a rural community with a primary care practitioner for nine to 12 months. It not only exposed students to rural practice and built their confidence by allowing them increasing responsibility for patient care, it also fostered participation in the community and encouraged the medical student to bring his or her family along by offering a $10,000 stipend—quickly renamed a "scholarship so that it does not appear that the University is paying students to go to school."[26] Since its inception, an average of 33 third-year medical students have chosen to participate in RPAP each year, and approximately 50% of former RPAP students are practicing in rural sites today.[27] Much has been written about the success of RPAP's immersion model for producing physicians who choose to practice family medicine, who work in rural areas and who stay in Minnesota.[27-29]

Problem Still Not Solved

By 1981, Minnesota researchers found the state had met its goal of training more physicians. Because of the national increase in output of physicians, more were staying in the state to practice; that, combined with slower-than-anticipated population growth in Minnesota, resulted in the population of physicians growing six to eight times faster than the general population. Some were even predicting that a surplus of physicians might exist by 1990.

Although differing definitions and counting methods across studies made it appear that an extraordinarily high number of medical students were choosing primary care careers in the late 1970s, other specialties were growing at a more rapid rate, and the ratio of primary care physicians to population continued to decline. Curiously, the researchers involved in the 1981 study said they had not examined data on how many young physicians were practicing in rural Minnesota, nor could they assess whether the 1960s manpower studies' goal of providing "adequate availability of physician services to all our citizens" had been met. Still, they believed that the anecdotal evidence indicated improved geographic distribution and "appropriate levels of access" to care. When combined with the greater productivity of primary care physicians, they speculated, there may have been a greater increase in patient contact with primary care physicians in rural areas than with specialty care physicians in urban areas.[9] Their conclusion carried a caveat: "It is unreasonable to expect universal equity in the distribution of goods and services in an exchange economy, but the progress toward socially responsible goals of access to physician services has been impressive."

RPAP Director John Verby issued a rebuttal to the researchers' 1981 article in *Minnesota Medicine*, noting that the authors failed to distinguish between family practitioners and other primary care practitioners and ignored "Jackson, Ivanhoe, Baudette, Warroad, Tracy and other towns" that had a visible need for family practitioners.[30] Two decades later, a study upheld Verby's contention, revealing that RPAP students who chose family practice were more likely to go into rural practice than those who chose other primary care specialties (pediatrics, internal medicine, medicine/pediatrics), the majority of whom ended up in urban settings.[27]

To a letter written in 1975 to Sen. Edward Kennedy, then a member of the U.S. Senate Health Subcommittee, University of Minnesota Medical School Dean Neal L. Gault Jr. appended an 11-page summary of the medical school's efforts to resolve the geographic maldistribution of physicians. Gault expressed optimism that there would be an "eventual favorable effect of this great endeavor on the physician shortage problem in Minnesota and the Upper Midwest, especially in a renewed and expanded emphasis on the role of primary care physicians in health care delivery." But he cautioned that most efforts listed were purely voluntary and that mandatory service requirements could be fulfilled in an urban family practice clinic. Although more graduates were staying in Minnesota and the Upper Midwest, there was no reason to assume that they would practice in rural areas.[25]

Gault later wrote Kennedy that if we characterize rural health care as a "crisis," the nation should respond accordingly. He advocated regionalization of health care, modeled on rural school consolidation with more centralized control. "Of course, the educational system did not have to overcome a well-established and costly private enterprize [sic] but with proper planning and incentives I do believe this nation will respond…." Gault called for a national plan to answer the immediate and long-range "health care needs of our people."[31]

Conclusion

Like the introduction of Truman's national health insurance plan, Medicare and the Clinton Health Plan, the passage of the ACA has stirred heated political debate about entitlement to medical care, who pays for it and the role of government. In the last 70 years, contention over these questions has resulted in federal health policy that is tied to the private medical marketplace, sending public funds into private enterprises.[32]

The government programs of the 1940s through the 1970s were ambitious efforts to address needs in terms of the health care workforce, health care facilities and access to care, but they did not represent the kind of comprehensive plan that Dean Gault proposed for meeting the nation's health care needs. The ACA follows the pattern of its predecessors: It addresses individuals' access to health insurance in the private marketplace; but it does not provide universal coverage.[32] More insured citizens no doubt will increase the demand for medical services. Targeted programs can increase the supply of physicians, but there is little historical evidence that the market can resolve inequities in the availability of care and the way it is delivered, especially for rural and other underserved populations. **MM**

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Mexican and Somali Immigrant Breastfeeding Initiation and Counseling

A Qualitative Study of Practices

BY LAUREN TEXTOR, KRISTINA TIEDJE, PH.D., AND BARBARA YAWN, M.D., M.SC.

Breastfeeding is highly beneficial to mothers and children. Yet even among women who intend to breastfeed their babies, it is not always initiated or sustained. We decided to examine whether cultural beliefs affect breastfeeding practices. Specifically, we looked at those of immigrant Mexican and Somali women who gave birth at a community hospital in southeastern Minnesota and those of the nurses and lactation educators who supported them. To study this, we conducted focus groups with health professionals (N=10) and in-person interviews with Somali and Mexican mothers (N=9). Although the mothers in this study stated their intention to breastfeed, our data show they faced significant challenges to early breastfeeding initiation and exclusive breastfeeding, including their belief that they did not initially produce enough milk. We found the nurses' and lactation educators' discomfort with counseling people from another background as well as language differences and lack of cultural understanding were also barriers to early breastfeeding initiation and exclusive breastfeeding. This study highlights how the beliefs of new mothers and the attitudes of nurses and educators can affect breastfeeding outcomes.

Having mothers breastfeed their newborns is a high-priority health objective for the nation.[1] Generally, immigrants living in the United States are more likely to breastfeed than nonimmigrants.[2,3] Women from Mexico and Somalia are considered likely to breastfeed their infants. However, delayed breastfeeding initiation and supplementation with formula and other liquids are common practices.[4-6]

Studies have revealed a number of reasons women from other countries may not breastfeed. Women from Mexico may stop breastfeeding because of their work schedules, environmental and economic barriers, and their belief that it causes harmful stress or *susto*.[7-9] Some of the reasons Somali women in the United States delay breastfeeding initiation or stop breastfeeding include belief that the colostrum should be discarded, that there is no milk in the breast for several days after birth and that plump babies are better, leading to supplementation of breast milk with formula. Other factors that may lead Somali women to delay or discontinue breastfeeding are inadequate postpartum and follow-up care and poor communication with and lack of trust in health professionals.[10,5]

Studies have investigated *intention* to breastfeed,[11-13] but less is known about how cultural beliefs and practices affect breastfeeding initiation. This is in part because of the way the research has been conducted. Survey studies define the initiation of breastfeeding differently; some include any breastfeeding at all, while others may use one week of breastfeeding as the criterion. Such studies often do not take into account whether initiation of breastfeeding was exclusive (without supplemental fluids or solids).[2,9] Also, little is known about the factors that may lead to late breastfeeding initiation and early formula supplementation among certain immigrant groups in the United States.

The purpose of this study was to examine breastfeeding initiation and exclusivity among mothers from Somalia and Mexico. Specifically, we explored how cultural beliefs may influence early breastfeeding practices and lead to misunderstandings between mothers and their nurses and lactation consultants.

Study Design

The study took place between December 2010 and June 2011 at a county hospital in southeastern Minnesota that serves a diverse population. We conducted focus groups with nurses and in-depth semi-structured interviews with immigrant mothers. The study adhered to research ethics guidelines and was approved by Olmsted Medical Center's Institutional Review Board. It was funded by the Minnesota Statewide Health Improvement Program.

We invited 20 Mexican and 20 Somali mothers to take part in our study. All were older than 18 years of age. Each was offered $20 to participate. In the end, only nine agreed to participate (five Somali women and four Mexican women). For the

nurse focus groups, we sent an email invitation to nurses and lactation consultants from the hospital's birth center. We invited 22 nurses altogether. Ten participated.

During the interviews with the immigrant mothers, we asked questions about their breastfeeding experiences, their attitudes and practices related to breastfeeding, and their perceptions of their relationships with their health care providers. All of the interviews with Mexican women and three of the interviews with Somali women were conducted in their native language using an interpreter. The interviews lasted 25 to 45 minutes.

The 10 nurses took part in two focus groups. We asked about their perceptions of breastfeeding policies and the concerns new mothers expressed to them about breastfeeding.

A team of researchers analyzed all the interview and focus group transcripts to identify themes and sub-themes.

Results

We found that both the mothers' beliefs and attitudes and those of the nurses had an effect on the women's breastfeeding practices. All of the mothers professed an intention to breastfeed during their postpartum hospital stay. However, they also reported concerns about pain, physiological changes in the breast and discomfort with breastfeeding in public. Both the Somali and Mexican mothers described breastfeeding as a cultural norm and mentioned that their families were generally supportive. They also had culturally specific reasons why they opted for formula supplementation during the postpartum stay. For the Mexican women, stress and fatigue (*susto*) were primary reasons for supplementing with formula (Table 1). In addition, some of those mothers described colostrum as milk that had gone bad because of stress. Similarly, Somali mothers explained how relatives warned them about *danbar* (first milk)—that *danbar* is "dirty milk" and should be discarded (Table 2). One mother indicated that colostrum should not be fed to newborns because it is "not fresh," that it sat "too long in the breast." Somali mothers were

TABLE 1

Results of Mexican Mother Interviews

THEMES	SUB-THEMES	QUOTES
Individual preferences and expectations	Benefits	"It is better for him in so many ways, and I wanted to lose weight. I did not breastfeed my first child, I wanted to breastfeed with this one."
	Physical changes	"My friends do not want to breastfeed because their breasts will droop."
	Pain	"[I had engorged breasts] two or three days after I had [my baby]. The pump I had bought didn't work and I didn't want to breastfeed him because it was just too painful. I had to wait for another pump and pump the milk out."
	Education	"I did not really know how to latch him on. And it just started to get very painful. At the hospital I did not feel any pain but then after I got home, that's when the pain started. I don't know why."
	Formula and guilt	"I feel like I failed as a mother with the [child fed with formula due to getting pregnant again], because I can see [the child] is a little smaller in weight and in size, and I feel guilty about getting pregnant so soon."
Cultural beliefs and practices	Modernity	"Breastfeeding is from older times."
		"My friends say it is easier to give formula."
	Discomfort in public	"I don't give [my baby] breastfeeding when I'm out of the house because I don't feel comfortable. When you go to the restaurant you can't just breastfeed."
		"Even older women ask me, why are you breastfeeding in public?… And I grew up just seeing women breastfeeding anywhere, anytime."
	Discomfort around family	"When you're around your family, it's OK, but still you feel that uncomfortable feeling like, OK, you know, I better go in the other room."
	Stress	"When you get stressful, scared or situations make you angry, you don't have enough milk, they stop giving your body milk… I try to get away from situations that make me angry or make me problems."
Communication	Trust	"If it's a doctor I'm pretty sure that it's good [advice]. But if it's someone else, I'll do some research or ask the doctor."
	Differing advice: family and doctors	"I asked one of the doctors if it is OK for me to drink pop, or if I can eat anything, and he said, that'll be fine, when my mom and my family say to not eat any spices, any pop and anything hot like jalapenos, you can't eat it. You have to listen to both parts, my mom and the doctors."
Structural issues	Work	"What happens is when I start working, I start giving the [formula], same with my sisters."
	Costs	"The doctor told me that I should give formula because I got pregnant. WIC gave me formula but not enough, so I had to purchase."

also concerned about "not producing enough milk," stating that there is "no milk in the breast" after delivery.

Somali mothers described getting conflicting advice from family members and nurses. One mother was told by a nurse to stop bottle-feeding her baby at night because her baby was in the 98th percentile for weight. She admitted that she had difficulty understanding this directive because in her culture plump babies were considered healthy. Mexican mothers also reported having difficulty reconciling advice from family members and nurses related to breastfeeding.

Discomfort associated with breastfeeding in public was identified as a primary barrier. Somali mothers noted that life in the United States involved frequently being "outside the home," which led them to supplement breast milk with formula. Mexican mothers said they were concerned about breastfeeding in public, in front of relatives and at social events. They also described going back to work as another barrier to fulfilling their breastfeeding goals. Some Mexican mothers viewed breastfeeding as "old-fashioned" and considered formula to be modern and more appropriate in the United States. They felt feeding their babies formula helped them "fit in."

The nurses and lactation consultants reported patients of all backgrounds had concerns about breastfeeding (Table 3). They said immigrant women believed they would not produce any breast milk until several days after delivery and that the first milk was "bad" or "dirty," causing them to delay breastfeeding initiation and to supplement with formula. The nurses and consultants also reported differences in how they viewed women of different origins. They described immigrant mothers as more "natural" and "instinctual" in their approach to breastfeeding than Caucasian mothers, whom they described as wanting to breastfeed "by the book." The nurses and consultants also reported immigrant mothers as being reluctant to work toward *exclusive* breastfeeding because of cultural beliefs about colostrum. They stated they felt more comfortable counseling women of European-American descent and said they would be more direct with those mothers. One stated, "We don't give our Caucasian moms room for the same excuses."

The nurses and lactation consultants described cultural differences as *the* biggest barrier to counseling immigrant mothers about breastfeeding. They said they often felt unprepared to work with women who had different beliefs and reported feeling those patients didn't trust them. They also felt that some immigrant women did

TABLE 2

Results of Somali Mother Interviews

THEMES	SUB-THEMES	QUOTES
Individual preferences and expectations	No milk	"There is not any milk in the breast [right away], but just the baby can have the breast. To get used to it."
		"I thought there was never going to be milk in there."
		"We pumped every three hours for 15 minutes, and [the nurses] encouraged me to keep pumping and putting [my baby] to breast, but there was no production … I cried about it a lot."
	Not enough milk	"You do not know how many ounces did the baby take in. In the bottle you can make sure, but how long would you have to breast feed each day, and how would you know that the baby was full? You can't see it."
		"At times when I had a very bad appetite I was worried that I didn't have enough milk production."
Cultural beliefs	Rest postpartum	"Normally the nurses fed the kids at first because you don't have a lot of energy."
	Danbar	"Milk that sits too long in the breast [should be discarded] ..." "And ladies that go to market in Somalia, who are gone for eight or 10 hours, will discard that milk too, because it is old."
	Cultural practice	"As a younger generation if we don't want to breastfeed, we really don't have a choice sometimes. Because the elders, neighbors and grandparents … breastfeeding is the typical thing."
Communication	Relationship with nurses and doctors	"My mom just knew the typical position [for breastfeeding], but then there are all these positions that you can use. It helped after I came to lactation, they could show me exactly the different positions I could use."
	Disagreement	"The doctor thinks my baby is too fat. To me, she looks really skinny. The girls in her category, she's in the 98th percentile, she's really good, you know? But the doctor [says] she is not supposed to be these pounds."
	Differing advice: family and doctors	On a recommended blood transfusion immediately postpartum: "The doctor said when I go home I'll be dizzy. Knowing about HIV and Hepatitis, I did not want a transfusion. My husband and mom were with me talking back and forth and my mom said there are ways that we can get your blood back up. I was not supposed to be released."
	Trust	"Relatives and family members said you need to drink more milk and cheese and dairy products [to produce breast milk]. That's a myth. The nurse said that you have to have a balanced diet and that will help you."
Structural issues	Life outside the home	"Life here [in the U.S.] is outside the house a lot, so it's easier to give the bottle than breastfeed all day."
	Cost	"I bought a pump that did not work. Later I found out from a friend that lactation will give you a pump."

not want to hear what they had to say. They reported that the presence of family members interfered with their counseling women about breastfeeding initiation. They explained that immigrant mothers often refused to breastfeed or to talk about breastfeeding in front of family members, as they viewed exposing the breast as inappropriate. The mothers did not perceive their hospital stay as a crucial time to learn about breastfeeding and seemed to value their own mothers' advice more than the nurses' counsel.

Language problems were another issue. The nurses and lactation consultants reported that many immigrant mothers relied on interpreters, and they often wondered if the interpreter translated information correctly. The nurses also reported that most Somali and Mexican interpreters were male. Male hospital interpreters were considered inappropriate for breastfeeding consultations and thus use of them was counterproductive.

Although the nurses and lactation consultants reported attending cultural competency seminars at the hospital, they felt those seminars did not equip them with effective strategies for counseling immigrant mothers. Some nurses admitted that they supplied formula to immigrant mothers in "six-packs," despite their concern about overfeeding because they were uncertain how to address the mothers' cultural beliefs.

Discussion

Our study found that communication difficulties, along with the patients' and nurses' differing beliefs and practices, have an impact on breastfeeding initiation. Although "breast is best" summarizes the breastfeeding policy at the participating hospital and the intent of all the participating mothers, our study shows that early formula supplementation proved an "easy way out" for both the immigrant mothers and the nurses. As a result, counseling regarding breastfeeding initiation was not nearly as successful as intended.

Despite expressing support for breastfeeding and having high rates of early breastfeeding initiation, the Somali and

TABLE 3

Results of Nurse Focus Groups

THEMES	QUOTES
Nurses' assessments of mothers' preferences and attitudes	On immigrant mothers: "Ninety to 95% of the time you're going to hear no milk … That is going to depend on if it is her first or fifth baby, is she here with support or not with support; conversations will differ."
	"The nerves of white women can impede their breastfeeding."
	"[Caucasian women] want breastfeeding to be by the book. You know you don't have to nurse it exactly 10 minutes; if it wants to suck a little longer, let it!"
	"Heaven forbid you expect that Caucasian mom to cluster feed through the night. You are definitely putting her out."
	"Immigrant women most of the time do have quite a bit of support [with breastfeeding]."
	"With Somali women a lot of times, while they are [in the hospital] it's about them. They have all these women coming to see them and they like us to take that baby to the nursery and just take care of it as much as we can."
	"It is rare to find Somali or Hispanic women exclusively breastfeeding. Once the milk comes in, they're still topping the baby off with formula."
	"Within the Hispanic culture, using formula — that's a status symbol, and it has been for years and years."
Nurses' biases	"With the [Hispanic] culture, [breastfeeding is] just something you do. There is more of a natural approach."
	"There is not that language barrier and we can be very upfront with Caucasian women: we feel comfortable with our own."
	"When it comes to our Caucasian moms, we do intervene much quicker than we do with our other cultures. We don't give our Caucasian moms room for the same excuses."
	"In [Somali] culture, they just knew after a certain time that milk would come in and they would put the baby to breast when they get home and the milk comes in."
Perceived barriers to breastfeeding counseling: clinical uncertainty	On Somali interpreters: "The conversations go on for so long, and then the interpreter turns and says, 'Yes, I told her.' You get a one-word response, yes or no, but this conversation has gone on for five minutes."
	"A lot of times [immigrant mothers] have family members there, and you don't want to impose, I guess. Even though I do believe it is very important for the baby to get [the colostrum], and there is a fine line there."
Impact of race/ethnicity on clinical care	"We take the six-pack of formula and put it in their drawers even though they are breastfeeding… we do what we do with our formula-fed babies because it makes it easier for everybody. We have talked about it and typically the answer is, well that's their culture. Or is it our culture?"
	"Some Somali patients are like, 'I'm bottle-feeding,' and they won't talk to you about breastfeeding because they do not want to hear it from you. I think people in the [Somali] culture have said, 'Don't mention breastfeeding because [the nurses] will go crazy.'"
	"I think for years we did beat our heads against the wall. When I started, we used to make them pump or tell them, 'If you're not going to breastfeed, then you need to start pumping.' We realized they weren't going to do that either."
	"You try to form a trusting relationship with them. Most of that education of their culture is directly from them."

Mexican mothers reported supplementing with formula early on. Somali women reported supplementing with formula because of concern about adequate breast milk supply and quality, and about their baby's health. Experience with drought, famine and high infant mortality in Somalia also may have led them to believe that plump babies are healthy, which has led to overfeeding and formula supplementation.[14,8] The Mexican mothers reported supplementing with or giving formula because of stress (*susto*). Our study confirmed the results of others that found Mexican mothers claim stress as the cause of breastfeeding problems and milk "going bad." In addition, our study indicates that the concern of immigrant mothers to "fit in" in their new country may have influenced them in favor of formula use.

The nurses' and lactation consultants' often unconscious attitudes toward the immigrant mothers highlight the need to improve cultural competency training and to reconcile a "breast is best" policy with the practice of giving away formula. Health professionals can be sources of negative support for breastfeeding if they give new mothers contradictory or inadequate advice.[4] More research is needed to determine how best to improve communication between nurses and immigrant mothers and their families.

Conclusion

This study has the obvious limitation of a small sample size. In addition, results may be biased because those who participated may be more positive about breastfeeding than those who did not. However, we think it highlights the fact that cultural beliefs and the practices of patients and their caregivers need to be taken seriously. The nurses and consultants felt ill-prepared to deal with the cultural differences. The immigrant mothers often felt misunderstood and too shy to share their cultural beliefs with the nurses.

The implication for practice is that cultural beliefs, social support systems and the practicality of breastfeeding must be taken into consideration when promoting breastfeeding during the postpartum period. Strategies such as self-efficacy evaluations, group training for mothers, new mother advocates and peer counseling have been shown to be effective. In addition, providing training that takes culture into account may be useful: For example, a *fotonovela* might be an appropriate way to communicate salient breastfeeding information to Mexican immigrants.[15] The hospital will soon make two new videos on breastfeeding and communicating with health professionals available in both Somali and Spanish. **MM**

Lauren Textor is in the Olmsted Medical Center Research Department; Kristina Tiedje is with Université Lumière Lyon 2, France; Barbara Yawn directs the Olmsted Medical Center Research Department.

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BY MRINAL M. PATNAIK, M.D.

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Anger and sadness confront my soul,
Why is there so much suffering in humanity,
Why does leukemia continue to take a heavy toll,

When you have no control over life and death,
The only elixir for your weary soul …
Is the gratitude expressed from the family,
… "Doctor you did everything in your control,"

How elusive this very control is,
… weighs heavily on my mind,
I hope and pray every single day,
That we leave no one behind,

For human dignity and compassion my heart abounds,
For comfort and peace my prayers resound,
As our patients' courage and endurance continue to astound,
For being in this profession my gratitude is nothing but profound.

In loving honor and memory …

Mrinal Patnaik is a leukemia specialist at the Mayo Clinic.

Note: In a letter accompanying this submission, Dr. Patnaik wrote, "We have had a fair number of young patients with leukemia pass away recently, and it has been simply heartbreaking."

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