Minnesota Medicine started 2018 with a look at history—of the magazine, which launched in 1918, and of medicine in Minnesota. The past is easy; we know how it all turned out, at least so far. The future is hard—and sometimes scary—because with the advances in science and medicine we’re seeing right now, come challenges in everything from resources to ethics to priorities.

We asked a number of experts to talk about what the future of medicine might look like. Their thoughts help us understand the world we’re facing—and make us want even more information.
What if we had a Health Care Board, in the fashion of the Federal Reserve? Congress sets a health care budget and the Board determines how to spend the limited resource for the best return on investment? Think how this could drive down pricing; every vendor would want to be on the paid-for part of the list of all potential care. Best of all, for the most part, it would get elected officials out of the equation.

What if we applied Moore’s Law—which says that the number of transistors in a dense integrated circuit doubles about every two years—to health care? Said another way, the cost of transistors is halved every two years. Health care has no option but to get “better, cheaper and faster” like every other industry. Serious disruption is in order.

What if we were able to cut public health care expenditure in half, from $2 trillion to $1 trillion a year. What could be done with a $1 trillion windfall? Pay down the national debt (> $20 trillion), improve education, tax relief. Wait a minute, the Federal budget is running a $1.2 trillion annual deficit. Maybe we could just live within our means.

What if we had a health care system focused on “better, cheaper and faster”?

What if rural access hospitals provided only urgent care, with transportation to larger facilities for most other care?

What if cost of care was transparent and patients/customers could shop for health care services?

What if we had a health care system that expected more “skin in the game” from the patients?

BY MARK EGGEN, MD
There are so many issues in U.S. health care, the single largest industry ever created anywhere in both relative and absolute terms. The medical-industrial complex looms large in government affairs, and its contributions to elected officials tend to dampen any real productivity improvements. But if we start asking the “what if …?” questions—even what seem like outrageous ones—we might see our way to a new future, where health care is better, better delivered, less expensive and more often provided at the right moment (early rather than during a health crisis).

Mark Eggen, MD, is an anesthesiologist in Minneapolis.

What if…?
Let’s talk about the future we want.

What if we had

The future

The future

What if

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What if
Mergers and acquisitions of health care organizations have been proceeding apace in the last few years, and they’re not likely to stop, says Stephen Parente, PhD, MPH, MS, professor of finance and the Minnesota Insurance Industry Chair at the Carlson School of Management and Finance at the University of Minnesota. It’s the story of health care nationally and in Minnesota—in particular, the Twin Cities.

But, as in so many things, “the Twin Cities as a market is different,” says Parente. “The big folks have been getting bigger and better.”

“Short-term, those waves are going to continue,” says Parente, who was nominated in April 2017 as assistant secretary of planning and evaluation for the U.S. Department of Health and Human Services. “The thing that is interesting to think about in the future is mega-mergers. Suddenly there’s an acquisition from out of state.”

The Twin Cities is ripe for acquisition or merger by a health system like Kaiser Permanente out of California or Geisinger Health out of Pennsylvania, says Parente, and at the same time, health systems in the Twin Cities are less likely to be subject to acquisition or merger because of their own strengths.

“Right now, everything we have that is a major brand is a Minnesota brand,” says Parente. “Mega-mergers could happen in the future, but it requires the culture of an institution to agree to that type of merger. If there’s anything we’ve learned in looking at the medical profession and the hospital profession it’s that there’s intense pride in what people do in these professions and the dedication they have and the legacy they have. And there’s the community as well, the community wants it to be theirs as well. Typically, you don’t see these kinds of acquisitions unless the community has exhausted all of its resources. The Twin Cities and Minnesota is a pretty vibrant economic community.”

Technology has, theoretically, made it easier for health systems to acquire clinics and hospitals, but the promise of technology—in particular, electronic medical records—is still not fully fulfilled. Large mergers, mega mergers, “require EMRs to work on a unified platform,” Parente says. “Technologically, that’s possible, because a lot are buying from the same vendors. But it’s not plug-and-play standardization. In part the gap is caused by the technology costs, but it’s more the human capital costs of using the technology.”

Systems that have been successful in acquisitions and growth have led with their IT platforms, Parente says. “I think that’s still
right because that way you can measure performance and it helps to adapt a culture from the very beginning about performance. And you need that if you want to make the economic argument about why you want to have mergers.”

Will there be more consolidation within the Twin Cities market, in particular, even without mega-mergers? Yes, Parente says. With larger local health systems, there will be fewer independent groups. “I think there will still be some,” Parente says, “but definitely the trends are going more and more to employee doctors, particularly in this region. The notion of salaried physicians is more acceptable in this region.”

That is not only a financial positive for the health care organizations, it fits the preferences of many new physicians coming out of medical school and residency. “The labor force for the physician market today is a lot different,” Parente says. “Half the folks in med school today are women and whether men or women, they are demanding a different work-life balance. You go back 30, 40, 50 years, the profession was very male-dominated. Then, you put out your shingle, you have one or a handful of partners working with you. It was a pretty entrepreneurial, independent game. That world just doesn’t exist anymore.”

Today, “It’s so challenging now to work in an environment where you have to deal with the insurance companies, claims submission, earning enough money with claims to just keep everything running. With care management system investments, EMRs, coding challenges and time-consuming documentation requirements, one can see why people hire a clinic manager. New medical school graduates finish with significant debt, on average, and have few economic options when they start, other than taking a salary.”

Becoming an employee of a large organization can take a lot of the non-clinical responsibilities and financial uncertainty off the backs of physicians.

The increasing number of salaried physician positions in Minnesota may make it easier for acquisitions by local health care giants or for a mega-merger in the future; an important part of the culture is already in place.

From a patient perspective, Parente is very positive about the creation of larger health systems. “If I’m a patient and it’s a bigger system that prides itself on a brand of taking care of people, that to me is potentially a big win,” he says. “What I want is someone that I give access to my EMR and no matter where I am, they access it and they add to it. If they’re all in the same system, that’s easier.”

Several things about the health care environment in Minnesota are unique, Parente says:

- The Mayo Clinic and health system, “which is obviously operating on an interstate, global basis. They pioneered that in a way other systems didn’t.”
- HealthPartners, “which is the most equivalent to Kaiser but with a different design. They are an insurer and a provider and they have been acquiring systems and new practices.”
- United Health Group, “which has Optum and Optum is making strategic investments to be a national provider operation.”
  “That puts us in a pretty unique spot, which is not a bad spot.”

Will Minnesota, or the Twin Cities, end up with one major health system? “I could see a scenario where there are two or three,” Parente says. “A lot of it becomes a question of brand and strategy. Maybe two or three regional major players that have ambitions beyond where they are. In the near term, the brands for the health systems that are here right now are fairly strong and it’s not clear that we are going to go to one super brand any time soon.” – INTERVIEWED BY LINDA PICONE, EDITOR, MINNESOTA MEDICINE
A path forward to fixing health insurance coverage

It’s likely up to Minnesota and other states  

BY LYNN A. BLEWETT, PHD

The Affordable Care Act (ACA) of 2010 provided new pathways to affordable health insurance coverage by providing new coverage to close to 20 million U.S. citizens. Key coverage provisions included the option for states to expand their Medicaid program, and Advanced Premium Tax Credits (APTCs) offered to individuals purchasing coverage on the Health Insurance Marketplaces. The evidence is clear—health insurance coverage increases access to needed care; increases use of preventive care, including flu shots and immunizations; and reduces medical bills sent to collection agencies.

Even Minnesota, with its historically high rates of health insurance coverage, was able to reduce its uninsurance rate by half—from 8.2 percent in 2013 to 4.3 percent in 2015. Minnesota expanded its Medicaid program to reach individuals with incomes at 138 percent of the federal poverty level (FPL), transitioned its long-standing MinnesotaCare program to a Basic Health Program under the ACA to provide subsidized coverage for those with incomes between 138 and 200 percent FPL and established a state-based Health Insurance Marketplace, MNsure, to administer APTCs for those with incomes between 200 and 400 percent FPL.

A few areas of the ACA needed continued work and still do—most notably for those purchasing coverage on their own without the advantages of employer-sponsored insurance: the individual or nongroup market. But the ACA has become so political and polarized that fixes at the national level are at an impasse. Attempts by Congress to repeal and replace the ACA in 2017 were futile; now those efforts have turned toward regulatory changes to dismantle key provisions of the ACA. These efforts include the elimination of the tax penalty associated with the individual mandate, shortening the marketplace enrollment period, eliminating funding for the navigators that help people enroll in MNsure and MinnesotaCare and, more recently, allowing greater flexibility for non-compliant ACA plans (for example, association health plans and short-term, limited-duration plans) that will continue to erode the risk profile of the individual market.

The undermining of the non-group market is working: the gains in coverage at both the state and national level are showing signs of erosion. Recent national data show a significant increase in the number of uninsured across 14 states. A Minnesota-specific survey conducted jointly by the Minnesota Department of Health and the University of Minnesota’s State Health Access Data Assistance Center (SHADAC) saw one of the largest singular increases in the rate of people without health insurance since 2001—from a low of 4.3 percent in 2015 up to 6.3 percent in 2017.

Minnesota and other forward-looking states are developing their own strategies to sustain the gains in coverage and to stabilize their individual markets. Minnesota started down this path first, with state-funded premium rebates in 2016 for those purchasing coverage in the individual market without a premium subsidy. In 2017, the state secured a subsidized reinsurance program for insurers offering coverage in the individual market. But these were both temporary fixes; the rebates a one-time adjustment and reinsurance funded for just two years.

The new governor and his administration will need to provide the leadership to make additional changes. Fortunately, there are a lot of ideas on the table, including:

- A MinnesotaCare buy-in proposal to allow individuals to purchase MinnesotaCare coverage at the full premium.
- A bipartisan legislative proposal to establish a tax credit for those not eligible for premium subsidies on MNsure, so that no one pays more than 9.6 percent of their income on insurance premiums.
- A possible state-level individual mandate to bring younger, healthier individuals into the risk pool.

Additional efforts should consider options for universal coverage for Minnesotan children (approximately 50,000 are currently without health insurance coverage), as well as immigrants who have limited options for affordable coverage. Perhaps key to affordable coverage are efforts to align incentives that encourage both the public and private sectors to control costs, improve quality and pass savings achieved on to consumers. Much more needs to be done; given the chaos at the national level, now more than ever, it’s up to states to act.

Lynn A. Blewett, PhD, is professor of health policy in the Division of Health Policy and Management, School of Public Health at the University of Minnesota and director of the State Health Access Data Assistance Center.

REFERENCES

Demographic change

Minnesota will become older and more diverse

The population of Minnesota—like that of the nation—is changing, and that will create new challenges for medical care providers and for patients, according to Minnesota State Demographer Susan Brower, PhD, MPP.

Brower outlined key overall demographic trends, and what they might mean to Minnesota Medicine:

An aging population
As far as patients go, aging is going to really impact medical care in the coming decade. Right now the oldest Baby Boomers are in their 70s and the youngest are in their 50s. If you start thinking about people in their 70s reaching their 80s and all the health care needs that arise in the eighth decade of life, it will really impact the provision of health care into the next few decades.

The flip side of the aging trend is that the workforce is emptying out and we don’t project a whole lot more growth than we have right now. We expect to see the most growth in need in health care and yet we don’t see a whole lot more growth in the workforce. This is a trend that’s just beginning.

Some places are starting to feel the impact of that already, particularly but not limited to rural areas. Any kind of health care that requires two people to be in the same place at the same time is going to be impacted.

A more diverse population
About 19 percent of the population is made up of people of color, or about a million residents. We expect that percentage to grow over time. Regardless of what happens with immigration in the future, we expect to continue to become more diverse.

The group of people who are poised to become parents is becoming more diverse. About 30 percent of those under age 5 are children of color. We’re talking about cultural and linguistic and orientations toward health and medicine and all those aspects of diversity that are going to continue to grow.

More poverty
We’re seeing a rise in poverty among young people, which has long-term health consequences. I think that’s something people don’t always understand. It’s not directly tied to the economy; it has more to do with changes in family structure, such as the growth of the single-parent household.

What it means
These demographic changes will bring big challenges to public budgets, to our communities, to our health care systems, to our institutions. I think we can expect to see change occur in the way we deliver and pay for services.

Don’t get too comfortable in the ways things are today; it’s likely to change. But on the positive side, if you have a good idea about how to do things, you may get the opportunity to try it.

– INTERVIEWED BY LINDA PICONE, EDITOR, MINNESOTA MEDICINE

Minnesota’s total population is estimated to exceed 6 million by 2032, and grow to nearly 6.8 million by 2070.

In the coming two decades, the under 18 population will grow modestly, gaining about 32,000 between 2015 and 2035. Meanwhile, the state’s 65 and older population will grow much more rapidly, adding more than half a million people (510,000+) over those same years. As a result of this growth, in 2035, the age 65+ group is expected to eclipse the under 18 population for the first time in our state’s history.

The share of the total population that is age 18 to 64 will fall from 62% in 2015 to 57% by 2028.

The percent of Minnesota’s population represented by people of color (those self-identifying as one or more races other than white, and/or Latino) is projected to grow from 14 percent in 2005 to 25 percent by 2035.

From the Minnesota State Demographic Center https://mn.gov/admin/demography/data-by-topic/population-data/our-projections/
Prescriptions for the house

The future of health is in the home

BY DOUGLAS WOOD, MD

A quiet revolution, which may predict the future of health care, is occurring all around us. One piece of this transformation can be found in a 5,500-square-foot working laboratory in downtown Rochester, Minnesota—the Well Living Lab. This collaboration between Delos, a pioneer in indoor wellness environments, and Mayo Clinic is much more than a series of isolated scientific experiments on new types of home or office enhancements. It is the beginning of a fundamental shift in philosophy for practicing physicians.

While the Well Living Lab is one force in the rapidly changing health care marketplace, it cannot stand alone. As physicians, we need to examine our own profession. We must acknowledge that most of us meet with our patients and diagnose them in a clinic or hospital setting. We learn about their medical history, review their health records and perform tests to determine symptoms or causes of ailments. But by limiting our scope to interactions within medical facilities, we are, in essence, ignoring the environment where they spend most of their time: their home. Home is where they sleep, eat and play. For some, it is also where they work.

Normally, if a patient is having difficulty sleeping, we have only anecdotal information about the home environment in which they sleep. We don’t have access to scientific data that can tell us the type of lighting, the temperature and the humidity of the bedroom. But what if we did?

Imagine having access to a bank of data that could tell us the history of the home sleeping environment and compare that with patient health records. And what if we were able to write a prescription and implement that prescription by inputting data directly into that home’s system? This prescription would change the lighting, temperature or humidity so that our patients would be able to sleep better.

Another example would be if we see the mobility of a patient declining at a certain time of year, we could prescribe a change to the humidity of his or her home. That solution could ease his or her immediate discomfort and diminish the chances of future...
the house

negative health events, such as a fall.

Once we begin to embrace the home as part of our practice, we can expand our thinking to use the environment as a therapy—one that most physicians rarely consider at this time.

To make this medical practice of the future feasible, we need three components:

• Information from wearable and in-home sensors. These sensors already exist in many forms and some are used for the research the Well Living Lab conducts. These sensors provide us with the information about our patients’ reactions to various elements within the built environment, whether that is light, temperature or humidity.

• Detailed health records. Again, we have these, and most health records are digital, making them easy to share and integrate into other systems.

• Machine-based learning to take all that data from the cloud and interpret it. This is our next horizon, which we are in the midst of crossing. In the future, physicians will be able to use the fruits of that knowledge to help our patients. But how realistic is this concept? My prediction is that within the next five to 10 years, we will begin to see substantial progress in the intersection of the built environment and medical practice, and a fundamental change will occur in physicians’ approach to health.

If we can refocus our thinking to health at home, we will have new avenues to treat many maladies, such as sleep disorders, heart failure or airborne diseases. Already, some of the technologies that deal with health of the home environment are available online or at our local Best Buy, Home Depot or Lowe’s. Some of our patients already are exploring these avenues, but without our guidance. I’m not suggesting that we go down the product road. We aren’t trained or knowledgeable about these devices, and we don’t get paid for prescribing them or suggesting them. But I foresee there will be an opportunity for physicians in the future to interact with our patients’ home environment through cloud-based data.

Bottom line: We need to be more forward-thinking about our role as physicians. It is my belief that physicians should be compensated to keep people well in their homes and offices. Wouldn’t it be revolutionary if we would be compensated for keeping our patients healthy so that they don’t have to come into our clinics or hospitals? We need to be thinking more about how we can integrate the home environment into our current practices and improve our patients’ lives.

Here’s another way to think about it: Most of the interactions with our patients relate to illness—not health. We need to open ourselves up to an entirely new dimension of health. We need to think of health in terms of our patient’s role—being a mother, son, husband, wife, caregiver or breadwinner. We need to think about health at home—not at a clinic or hospital. By doing this, we will be able to more accurately assess health in terms of the entire scope of a person’s life.

Douglas Wood, M.D., cardiologist and internist, is medical director of the Mayo Clinic Center for Innovation. He is president-elect of the Minnesota Medical Association.

The Well Living Lab, a collaboration between Delos and Mayo Clinic, is a research facility that uses advanced sensor technology and remote monitoring to observe and track participants in its research at home, work or play.
More than IT
Health informatics may reshape the way medicine is practiced

When you are charting a patient on the computer in your office, or looking at an x-ray sent to your tablet, or a patient sending you their blood glucose meter reading via a patient portal, you may not think of it as being on the front edge of medicine. And you may not call it “health informatics.” It’s just practicing medicine in the 21st century. But harnessing the power of electronic information in order to better test, analyze and treat patients ultimately will transform how health care is practiced, according to Deepthi Pandita, MD. “Every provider who has touched an electronic medical record is using health informatics; we have so many decision points and so much knowledge built into the electronic medical record.”

Pandita practices internal medicine and is the chief health information officer at Hennepin Healthcare. “Health informatics is the chasm between people, process and technology, as it relates to health care,” she says. “It is not IT [information technology] although yes, technology is a piece of it.”

She gives the example of how health informatics might come into play with the opening of a new clinic. Electronic medical records (EMR) would need to be set up, but to do that in a way that makes it most useful, the unique challenges of the clinic would need to be considered. “Who checks in the patient? Who sees the patient?” says Pandita. “That’s the process piece, and no two places are alike in terms of process. And then there’s a people piece.”

Informatics ties the front end of the clinic’s work—information about the patient and the reason he or she has come into the clinic—with the back end, the way claims are submitted to insurance and bills generated.

Health informatics is not limited to clinical informatics, however. There are several subgroups—bioinformatics, pharmacy and radiology—and new fields opening up. “Pharmacy is going full speed because of genome mapping,” Pandita says. “People have their genetic codes and informatics can embed those traits in the EMR, then that can drive and support clinical decisions at the point of care.”

Genomic
Building the foundation for successful integration into clinical care

BY SUSAN M. WOLF, JD, AND KATHRYN GRIMES, MA

Since the first full draft of the human genome sequence was released in 2001, we’ve moved from the familiar world of genetics to a new era of genomics. While genetic tests have been used as diagnostic tools for decades, the new capabilities and vast amount of data generated by genomic sequencing raises new questions and opportunities in every sphere of health care.

As genomic sequencing evolves from being primarily a research tool to clinical application, a project funded by the National Institutes of Health (NIH) entitled LawSeq is focusing on building the legal foundation for genomic medicine. The law of
For example, she says: “A patient comes in with a simple thing, like a sore throat. We treat it a certain way. But informatics-driven genomic data in the EMR might show that amoxicillin doesn’t work for this patient. We all have these patients that we wonder why they aren’t getting better, but as we increase and improve our use of informatics, we’ll have better answers.”

Another important area for informatics is population health, Pandita says. “The ecosystem is around the needs of the patient, beyond just healthcare. What is happening now is that we are trying to incorporate non-healthcare data that include social determinants of health into the EMR, which can be visible to all, including payers—who can then understand that no two patients are alike.”

Health informatics is a burgeoning field, and it’s happening with great speed. It became a board-certified specialty only in 2014. At that time, Pandita says, there were about 250 people nationwide specializing in it. Today, it’s about 1,600. “In about five years, it has really grown,” she says. “It has become a very desirable specialty after residency, for those who want to practice, but also to do informatics.”

An informatics fellowship is a two-year program; the only fellowship in Minnesota currently is at Mayo Clinic, but the Twin Cities will get its first clinical informatics fellowship program at Hennepin Healthcare, effective July 2019. The new Fellowship is being launched in collaboration with the Veterans Administration and may provide a pipeline to future informaticists in the Twin Cities.

Health informatics are mostly in use in health care systems, but there is growing interest from industry, payers and health departments, both state and national. “That’s where the growth is occurring,” says Pandita. “3M, Optum, Medtronic … they want to hire people with an informatics background,” she says. According to Pandita, the Amazon-Berkshire Hathaway-JP Morgan Chase group that hopes to change the way health care is delivered—and paid for—with an emphasis on measured quality, just hired several physicians, most of whom have informatics backgrounds.

“The main caution is data overload,” Pandita says. “We have more devices people are using and different ways to deliver care that are not face-to-face. And all that is data. Who owns that data? How do we store it, protect it, utilize it optimally? There is some risk with every interaction; hacks are very common on the EMRs. Cybersecurity is a mounting concern and it’s adding a lot of layers of cost to healthcare systems to increase their security measures.”

– INTERVIEWED BY LINDA PICONE, EDITOR, MINNESOTA MEDICINE

genomics is currently unclear, poorly understood and contested. Scholars at the University of Minnesota and Vanderbilt University are collaboratively leading a national working group to analyze federal and state genomics law and then recommend changes to support successful integration of genomics into clinical care.

Genomic sequencing—including whole exome sequencing (WES) and whole genome sequencing (WGS)—offers crucial diagnostic insights and treatment opportunities in a range of scenarios. These include diagnosis of children with puzzling neu-
rodevelopmental conditions and identification of new therapeutic targets and strategies in cancer patients. In addition, many patients can benefit significantly from treatment options tailored to their genotype. The field of pharmacogenomics—tailoring drug selection and dosing to relevant differences in genes affecting drug metabolism—offers to revolutionize medication prescribing practices. These exciting developments call for clear standards and law governing the use of genomics in clinical care.

Health care providers are already grappling with legal issues raised by genomics. Physicians may feel their training left them ill-equipped to recognize when genomic testing is indicated and poorly prepared to interpret the results. Patients may even come to clinical appointments with genetic information they’ve received as a result of direct-to-consumer (DTC) testing. Medical geneticists, genetic counselors and expert laboratory personnel will be crucial partners, offering expert interpretation and recommendations. Physicians may nonetheless have concerns about their own exposure to liability as genomics increasingly pervades cancer care and other medical domains. Physicians may also worry about divergent genomic interpretations across laboratories and what quality standards are in place. And because genomic analyses rely on the collection of large amounts of genetic information from individuals and interpretation using genomic databases, concerns about how to secure the privacy and confidentiality of genomic information loom large. All of these issues—liability, quality, and privacy—are central concerns in the LawSeq™ project.

The need to clarify the law and standards governing use of genomics in health care is the catalyst for the LawSeq™ project. The project brings together researchers, clinicians, laboratory experts, informaticians, attorneys and policymakers to clarify what the law currently is and to formulate recommendations on what the law should be. The project is focused on the law addressing liability (including tort and contract exposure of clinicians, laboratory personnel and their institutions); quality (analytic validity, clinical validity and utility of genomic sequencing results); and privacy and access (including what results should be entered into medical records, and what access patients have to laboratory reports). LawSeq™ will help establish a framework for when the law and rules of research should apply versus those of clinical care, a growing challenge with the rise of translational research approaches that blend research with clinical care.

To support the translation of genomics into the clinical setting, the LawSeq™ team is developing a website offering tools to search and retrieve federal and state law on genomics. It will provide a free public database of the relevant statutes, regulations and reported judicial decisions. In addition, the site will offer a curated selection of core articles, so users can access commentary and scholarly analysis.

The project is also conducting empirical research, in order to analyze what key professional stakeholders see as the major legal issues affecting genomics and query them on possible solutions. This empirical research is helping inform the LawSeq™ team as we generate forward-looking recommendations for legal improvements to support genomic medicine.

In many domains of medicine, genomics is playing a key role in creating the future. The LawSeq™ project will significantly advance the resources available to researchers, clinicians, their institutions, research participants, patients and the public. By creating a central resource on genomics law, the project promises to advance the integration of genomics into clinical practice in Minnesota and across the country.

A national public LawSeq™ conference and webcast will be held on the campus of the University of Minnesota on April 25, 2019. To learn more and register, visit z.umn.edu/LawSeqConference.

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