

# Innovating for the Future: Advancing Medical Discoveries and Expanding Access to Care

Expanding Access to Primary  
and Ambulatory Care



A background image showing two women at a podium. The woman on the left is Amy Meister, DO, and the woman on the right is Lisa Rotenstein, MD. Both are wearing lanyards and holding microphones. The image is overlaid with a light blue tint.

“Architecting a benefit design could be really utilized to encourage adoption of digital tools, drive superior outcomes, and maintain engagement. The secret sauce behind that was architecting the benefit design so that the more engaged you were with the platform, the more you learn and facilitate your own care, you’re able to have a lower out-of-pocket cost for your personal health care needs.”

— Amy Meister, DO, UPMC Health Plan

“There’s great potential for AI-based solutions to help us triage. What can we triage and answer and what can we provide education on, what can we provide a simple phone number for in response to a message and what really needs a clinician’s attention and careful thought and compassion in a message. I think that’s really the future for how we use technology.”

— Lisa Rotenstein, MD, Brigham and Women’s Hospital

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“Today, several million patients come every year to that small town in southern Minnesota. But that’s the old school: ‘The doctor will see you now’ mindset. We have to pivot to a mindset of ‘the patient will see you now.’”

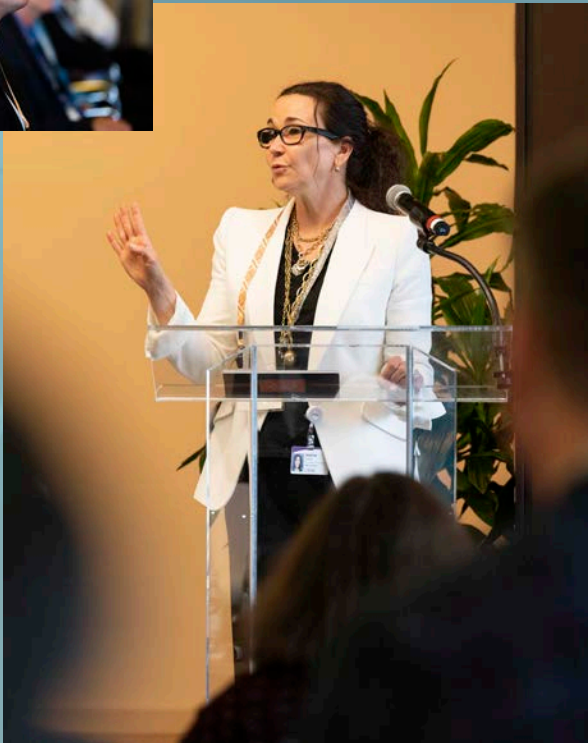
— Paul Mueller, MD, Mayo Clinic Health System

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# About the Top of Mind Summit

The Top of Mind Summit was held at the Center for Connected Medicine (CCM) at UPMC on April 24-25, 2023. The 2023 event, “Advancing Medical Discoveries and Expanding Access to Care,” was the sixth Top of Mind Summit and the first held in-person since 2019.

Focused on the most pressing issues facing health systems, the invite-only event for leaders and innovators from across the health care ecosystem included a range of discussions, including sessions focused on improving patient access, boosting patient engagement, the emergence of artificial intelligence (AI), regulations spurring interoperability, and innovative payment models.





Attended by more than 60 executives from health systems, payers, technology providers, and others, the two-day program featured 10 sessions and more than two dozen speakers. Held in the CCM's event space in Pittsburgh, Pa., the intimate event fostered lively discussion, debate, and many networking opportunities.

This report summarizes key themes that emerged from the discussions.



# Prioritizing Clinician Well-Being is Essential to Meeting Consumer Expectations

## Key Takeaway:

There are three things health systems can do to improve clinician well-being:

- 1 Co-design equally for patient and provider.
- 2 Technology should lower clinicians' cognitive load, not add to it.
- 3 Give clinicians more time and greater resources.

messaging from patients and online scheduling. While those technologies are key to improving the consumer experience and reduce the friction for patients trying to access the system, they also are adding more work for providers.

It came up in a discussion of the role of health data in boosting patient engagement. While the greater availability of data, whether it's patient-generated or being pulled out of the electronic health record with machine learning technology, could give the patient and their providers a more complete view of their health, we don't yet have an efficient way to deliver meaningful insights without adding to the workload.

**T**ina Shah, MD, set the stage for the Top of Mind Summit with a keynote address that tackled a pervasive and difficult issue in health care: provider burnout.

Dr. Shah, who's a practicing critical care physician, consultant, and digital health expert, approached the topic of burnout in a way that resonated with the health care leaders in attendance. At a time when consumer expectations for health care delivery are rising, the health care workforce is overburdened, stretched thin, and simply burned out — which means many are not prepared to meet rising expectations from their patients.

Her presentation, which came on the first night of the Summit, set the stage for many of the sessions that followed the next day. The audience at Top of Mind heard again and again from a variety of speakers that burnout was an issue affecting many parts of health systems.

They heard it come up in a session on expanding access to care — a primary theme of the Summit and CCM research over the past couple years — and the challenges clinicians face dealing with digital

What's the solution? Dr. Shah offered three concluding thoughts on how health systems can move forward and ensure that their clinicians are prepared to meet the demands of patients.

First, technology solutions need to be co-designed with patient and provider experience in mind.

Second, technology should be leveraged to reduce the cognitive load on clinicians. It needs to be better integrated and operate in the background to make care delivery easier for clinicians, not more burdensome.

And finally, clinicians simply need more time and greater resources to confront all the challenges they're facing.

"And when we do that ... there's no limit in where we can go," she said.





“It’s not just enough to hit patient satisfaction. Our consumers expect to be delighted. ... Our consumers are expecting us not just to deliver good care, which I think we’re all trying our hardest to do, but to delight them. But how do we delight someone when sometimes we don’t have the basic medications we need.”

— Tina Shah, MD

# Ensuring Patient Access: Technologies, Challenges, and Solutions

## Key Takeaways:

1

The use of digital messaging by patients has increased greatly, which increases access and engagement. But clinicians need more time and resources to appropriately handle messages.

2

Providing care in the home not only reduces costs but also increases patient satisfaction, and it can be delivered with fairly simple technology by current standards.

3

AI holds significant potential to reduce the burden on clinicians by helping them more efficiently triage incoming patient messages.

Improving patient access is critically important for health systems to address. The topic of improving patient access was front and center during the Summit with the first two sessions focused on expanding access for primary care and the technologies enabling greater access. Physicians and other providers are keenly aware of issues and want to be part of the solution to make it easier and more convenient for their patients to access the care they need. However, as in many discussions at the Summit, a key tension rose to the surface as organizations implement new technologies to improve access. Digital messaging, self-scheduling, telemedicine, and other solutions can increase clinician burnout if their use is simply added onto already busy workloads.

Patients' use of asynchronous digital messaging has skyrocketed, which is a positive for patients if they can reach their providers and get questions answered more easily. And this communication likely could lead to improved outcomes by boosting patient engagement, said Lisa Rotenstein, MD, Medical Director for Population Health at Brigham and Women's Hospital. But the number of messages clinicians receive and are expected to respond to is only growing. "And so ultimately, it has to do with quantifying this work and recognizing it as a distinct piece of work, either that we build in time for or somehow we give people credit for as we calculate their productivity," Dr. Rotenstein said.

At Mayo Clinic, time is being built into clinician schedules specifically to provide non-visit care, such as answering patient messages, said Paul Mueller, MD, Regional Vice President at Mayo Clinic Health System. "In a primary care schedule, it may be five hours per 40 hours. In some other areas, it's eight hours per 40 hours because there's just so much work to be done," he said.

Another strategy involves adding more advanced practitioners to primary care practices, according to Ken Cohen, MD, Executive Director of Clinical Research at Optum. Having a range of practitioners supporting a primary care physician helps to unburden the physician and improve access for the patient. "The real model is for the primary care physician to manage a team of a couple of advanced practitioners

with urgent care, routine well care, and well-woman care being done predominantly by the advanced practitioners. And then complex care management and complicated illness and acute severe illness are being managed more by the physician," he said.

In addition to dedicating more clinicians in practices to help balance workloads, technology also can play a greater role in opening access, other speakers pointed out.

Telehealth, which expanded significantly during the COVID-19 pandemic, is effective for providing access when patients might need to travel far to see a specialist. At Boston Children's Hospital, for example, e-consults and a second-opinions program both rely on a virtual connection to provide care to patients where clinically appropriate, said Patrick Jordan, the hospital's Director of Virtual Access. "It's done a lot for us on shortening distances for our patients who have to travel to Boston, sit in traffic, pay for parking, take half their day with their kids out of school," he said.





With the advancement of technology, more care can move into a home setting without the need for sophisticated equipment, Michael Boninger, MD, President of UPMC Innovative Homecare Solutions, pointed out. Not only does technology-enabled home care reduce costs compared to an emergency department visit but also it increases patient satisfaction. “We have a program where it’s an emergency room on wheels. If you’re a UPMC Health Plan member and you’re feeling sick and your doctor’s thinking about sending you to the emergency department, we can send a mobile emergency department to you with a connected telemedicine visit,” Dr. Boninger said.

And while there’s a strong focus on mobile devices and enabling greater connections between patients and their health systems, Mark Zhang, DO, Medical Director of the Brigham Digital Innovation Hub, said he expects AI to have an even greater impact on the practice of medicine in the coming years. “Artificial intelligence and large language models and these new emerging technologies truly will disrupt everything we do both in medicine and in society as a whole. And that’s going to unlock, I hope, a lot more time to be a clinician and to do clinical care,” Dr. Zhang said.

Dr. Rotenstein made a similar point about the potential for AI to reduce the burden on physicians, which should improve access and care. “There’s great potential for AI-based solutions to help us triage. What can we send to triage and answer? What can we provide education on? What can we provide a simple phone number for in response to a message? And what really needs a clinician’s attention and careful thought and compassion in a message. I think that’s really the future for how we use technology,” she said.

“We are still very much in the phase of the mobile device is king. ... A lot of the work that we’re doing right now is really about how do we utilize mobile devices and web tools to engage patients in a meaningful way, in an appropriate way where the touch may be light but it is just the right amount needed for the interaction.”

— Mark Zhang, DO, Brigham Digital Innovation Hub



# Boosting Interoperability and the Role of Data in Patient Engagement

## Key Takeaways:

- 1 Easier and more widespread data sharing should drive innovation in health care by attracting more people who want to build solutions.
- 2 Be clear and intentional with the problem you are trying to solve; patient engagement is best achieved when providers are clear about what outcome they want to improve.
- 3 Providers know which interventions work with patients, the challenge is finding novel and efficient ways to scale them.

At the heart of digital innovation is data. And in health care, data interoperability has been a key challenge facing the industry. The prevalence of silos and non-standard and unstructured data have hindered innovation in health care — innovation that could lead to better patient engagement and improved outcomes. The Summit addressed these related topics through several sessions, including in a fireside chat with Micky Tripathi, PhD, National Coordinator for Health Information Technology at the U.S. Department of Health and Human Services, and in a panel discussion exploring how companies are using data to engage patients.

Dr. Tripathi updated the audience on efforts at the federal level to bring greater interoperability to health care. As the National Coordinator for Health IT, he is implementing policies that push providers and payers to adopt standards that allow data to be easily shared. He discussed FHIR standards, or Fast Healthcare Interoperability Resources, which use “more modern conventions for interoperability that are aligned with the way the rest of the internet economy works,” he said.

Among the beneficial attributes of FHIR compared with earlier standards, is it is more flexible and allows for app-based data exchange, Dr. Tripathi said. While use of FHIR doesn't address issues with data quality, its “lightweight capability” should drive greater innovation by attracting more people to want to build solutions for health care. “If we learned anything from the internet, hopefully it's that the more people you bring into a problem, the much more likely you are to get more innovation,” Dr. Tripathi said.

Building upon efforts to make more health data available to patients and their providers, experts also discussed ways those data can improve patient engagement and, ultimately, drive toward better health outcomes.

Aman Mahajan, MD, PhD, MBA, a University of Pittsburgh Professor, Executive Director of UPMC Perioperative and Surgical Services, and Senior Medical Advisor to UPMC Enterprises, described his efforts to translate patient engagement pathways created to improve outcomes for surgical patients into digital tools that can be scaled beyond UPMC hospitals. “We are translating a lot of what we are doing in a brick and mortar or a person-to-person communication into a digital health platform that's actually enabling us to reach out to patients so they can participate in their own care,” Dr. Mahajan said.



But just because you build it doesn't mean patients will pay attention. Abridge, a company that developed an app that records and annotates conversations between patients and their doctors, has found that people with chronic conditions are more motivated to engage with their health. Expanding to primary care populations, for example, "is a totally different ballgame where it really requires that we think through their journeys and we nudge them at the right time with the right information," said Shiv Rao, MD, CEO and Co-Founder of Abridge.



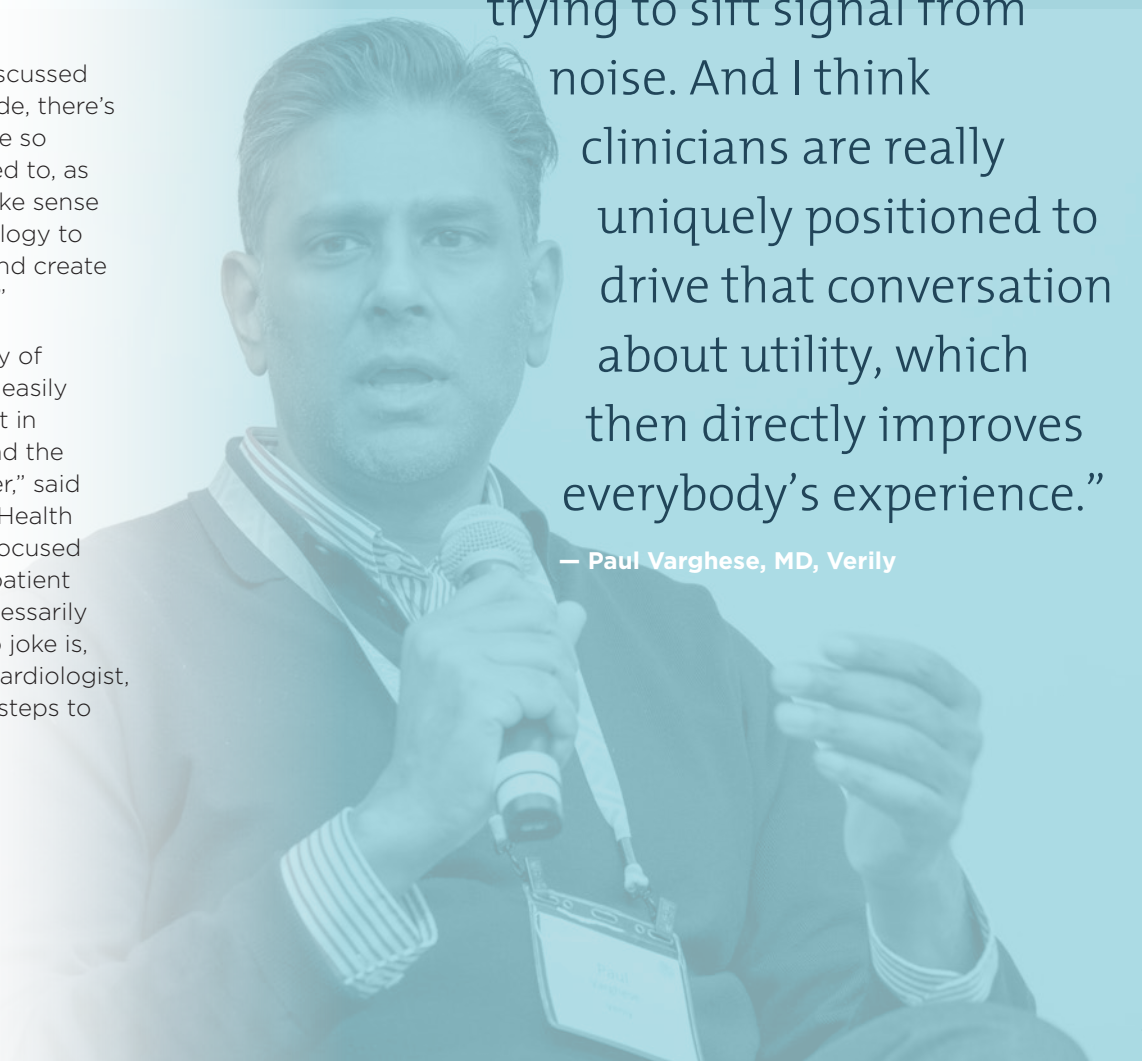
While provider burnout is a much-discussed topic, Dr. Rao said, "on the patient side, there's a similar phenomenon where we have so much information that we're expected to, as patients, consume and distill and make sense of...Finding a way to leverage technology to distill, summarize that information, and create artifacts can help everyone involved."

Technology companies have a history of accumulating large amounts of data easily and then extracting value from it. But in health care, "the stakes are higher and the rigor to the solutions has to be higher," said Paul Varghese, MD, Clinical Lead for Health Informatics at Verily, a life sciences-focused Alphabet company. Just because a patient

wears a fitness tracker that counts their daily steps doesn't necessarily mean those data is going to be useful to a physician. "My go-to joke is, please don't bring me your Fitbit data when you visit me as a cardiologist, because I don't know what to do with it. You went from 8,000 steps to 7,000. Is that bad? I don't know," Dr. Varghese said.

“We’ve heard a lot of themes about the burdens that we place on both patients and clinicians trying to sift signal from noise. And I think clinicians are really uniquely positioned to drive that conversation about utility, which then directly improves everybody’s experience.”

— Paul Varghese, MD, Verily



# Advancing Pharmacy Innovation by Aligning on Value

## Key Takeaways:

- 1 Today's tools are not going to cut it for tomorrow's innovation. New tools are driving engagement, stakeholder alignment, and value in the pharmacy space.
- 2 Value-based contracting in the pharmaceutical industry is in its early stages and is highly complex, but efforts are underway to expand these financial arrangements.
- 3 Investors are increasingly aware that they may need to factor in reimbursement when formulating an investment thesis for a biotech startup.

Two Summit sessions homed in on the recurrent themes of innovation and value, specifically addressing how these should be applied in the pharmacy and drug development spaces. There was a clear call to action for industry players to center solutions and models around value and incentivize the right behaviors.

Chronis Manolis, Chief Pharmacy Officer at UPMC Health Plan, provided the audience with an overview of an industry conundrum — which he outlined as a dichotomy of rapid medical innovation that is bringing the most effective drugs to market, yet is plagued by continued challenges around cost, engagement, and access. “I’ve been in this business a long time and we have the best drugs we’ve ever had,” he said. “Yet the people that are responsible for paying for the products, they’ve got a barrier mentality. They’re asking, ‘How do I manage these pharmacy costs?’”

Key pharmacy stakeholders addressed solutions that are being developed to tackle these complex issues.

Anurati Mather, CEO and Co-Founder of Sempre Health, addressed how her company is aligning stakeholders in a way that hasn’t traditionally existed. Sempre Health engages pharmaceutical manufacturers and health plans to drive patients to adhere to their medications. The company offers an incentive program for patients which results in lower

out-of-pocket costs while improving medication adherence. “Using an incentive at the point of sale to drive that on-time and adherent behavior and engaging the patient using text messages along the way,” Ms. Mather said. “How we’re engaging the patient drives pretty significant adherence improvements and between 45% and 60% savings for the member at the point of sale.”

Patrick Baker, General Manager of Mosaic Pharmacy Service, spoke to how Mosaic’s high-touch pharmacy is enhancing engagement for the most complex patients. Operating under an at-risk financial model, Mosaic provides a range of services to patients who’ve been referred into its program by a payer, including medication reconciliation, ongoing pharmacist


support, refills delivered in pre-sorted packaging, and other services. “At the end of the day, it’s proven to improve adherence, decrease cost of care, with a world-class net promoter score,” Mr. Baker said.

Rob Bart, MD, Chief Medical Information Officer at UPMC, discussed advancements in real-time pharmacy benefits integration and how this budding technology can help align physicians who are writing prescriptions with the financial situations of their patients. High out-of-pocket costs can be a serious barrier for patients to fill prescriptions, but physicians are rarely aware of an individual patient’s pharmacy benefits. “It’s an incredible opportunity because there aren’t too many opportunities where you could positively affect the patient, improve the prescriber’s experience, as well as provide benefit to the payer,” Dr. Bart said.

In addition to aligning stakeholders in the pharmacy space through innovation and technology, there is also a growing need for innovation around payment models and ensuring broad access for all patients to new therapies. Leading experts from the provider, payer, policy, and investment sides discussed the challenge of bringing value into the equation when it comes to paying for high-cost treatments.

Kaha Hizanishvili, Associate Executive Vice Chancellor of Market Growth and Transformation at UMass Chan Medical School, discussed the complexities of establishing value-





based contracts on the state-level with pharmaceutical companies. While Mr. Hizanishvili has had some success in structuring rebates based on effectiveness of a pharmaceutical, it is so far only a small slice of the overall drug spend each year. “Really value-based contracting is a safety net. It is to ensure that we pay for the value as opposed to, we don’t pay when the value was not delivered,” he said.

At the federal level, Ellen Lukens, Deputy Director of the CMS Innovation Center at the Centers for Medicare & Medicaid Services (CMS), addressed efforts to establish a program that states can opt into in which CMS would administer value-based contracts with pharmaceutical companies. The hope is that the federal agency can shoulder some of the complexity burden that is often a barrier for states to get value-based contracting off the ground. “In talking with payers and in particular with states, it’s clear that the significant one-time cost of cell and gene therapies is an enormous issue for them,” Ms. Lukens said. “We are optimistic that it’ll be something attractive to states and manufacturers.”

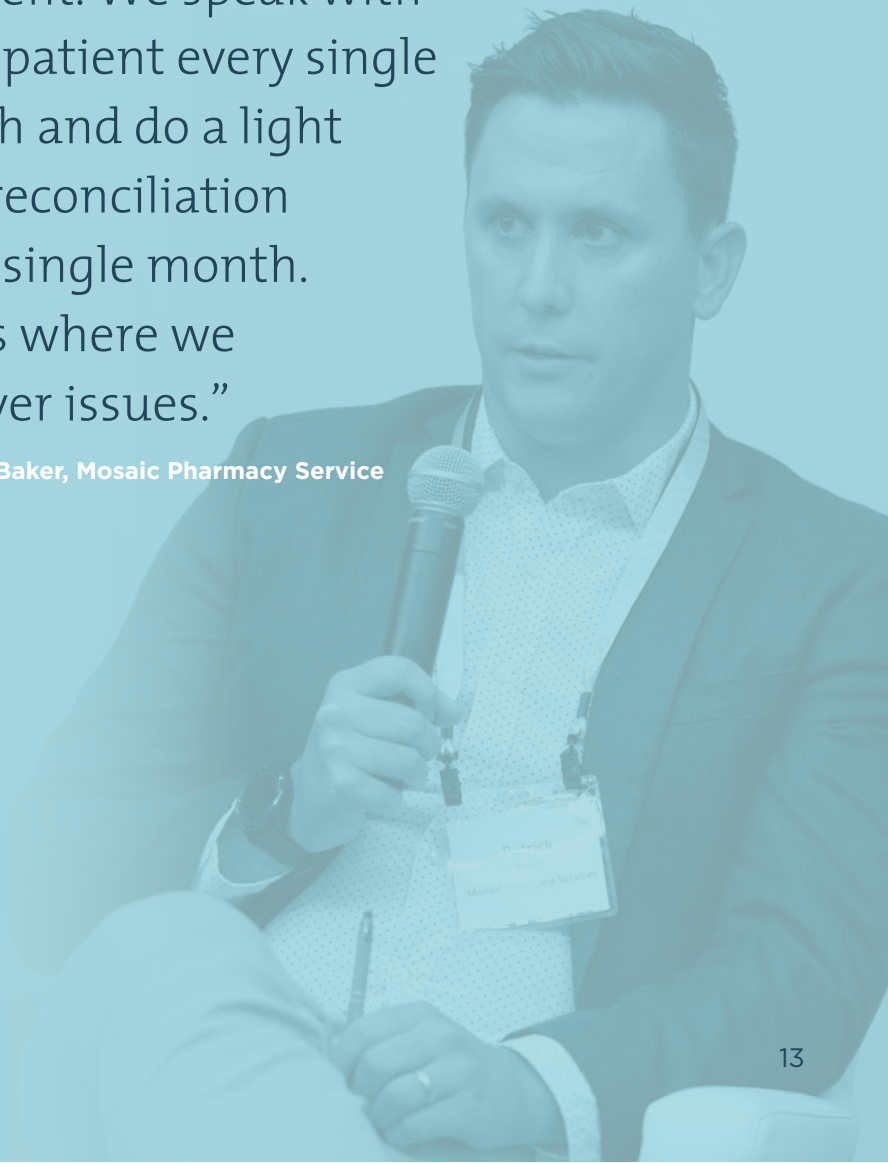
Not only are payers contending with how to manage the high cost of new therapeutics, but also venture capitalists that are a linchpin in funding innovation in the biotech space are starting to wrestle with reimbursement questions and concerns.

Mike Carusi, General Partner of Lightstone Ventures, described his experience with medical device startups about 15 years ago when it became more difficult for early investors to exit these companies because larger medical device companies became more cautious about acquiring new products that didn’t have guaranteed reimbursement models. “And that bent the whole venture model because it’s more time, more money,” Mr. Carusi said.

Fast-forward to today and investors are only just starting to consider whether a new drug will be reimbursed and what impact that has on an investment thesis, he said. “What we’ll ultimately see is whether or not that pharma interaction with biotech takes a step back and our companies are potentially not acquired until later. And that again will strain the model because we as venture capitalists, we just can’t fund these companies all the way through. It’s simply too much capital.”

“I think there’s nothing that really can replace a good old-fashioned conversation with a patient. We speak with every patient every single month and do a light med reconciliation every single month. That’s where we uncover issues.”

— Patrick Baker, Mosaic Pharmacy Service



# Summit Sessions and Speakers

## Can Our Health Care Workforce Meet Patient Expectations?

A former White House official and recent senior advisor to the U.S. Surgeon General discussed the gap between consumer expectations for health care delivery and an ill-prepared health workforce. The keynote addressed the inextricable connection between patient experience and employee experience and how this is the lynchpin for meeting consumer needs.



**Tina Shah, MD**, Principal, TNT Health Enterprises

## Aligning Stakeholders to Advance Value-Based Pharmacy

To yield the full promise of new therapies coming to market, there must be alignment amongst all stakeholder groups: pharmacists, drug companies, payers, clinicians, and patients. The panel made the case for all stakeholders to be incentivized by value, not volume, in order to deliver the greatest benefit to patients and how technology is being used to drive alignment among stakeholders.



**Patrick Baker**, Senior Vice President and General Manager, Mosaic Pharmacy Service



**Rob Bart, MD**, Chief Medical Information Officer, UPMC



**Chronis Manolis**, Chief Pharmacy Officer, UPMC Health Plan



**Anurati Mathur**, CEO, Sempre Health

## Prioritizing Clinician Well-Being

A panel of experts built upon Dr. Shah's remarks by diving more deeply into the topic of clinician well-being and the importance of addressing workforce issues for improving the quality of care.



**Elisa Arespachoga**, Vice President, Clinical Affairs & Workforce, American Hospital Association



**Jennifer Berliner, MD**, Director of Physician Well-Being, UPMC



**Tina Shah, MD**, Principal, TNT Health Enterprises

## Expanding Access to Primary and Ambulatory Care

Primary and ambulatory care are key entry points for patients and vital frontlines in the push to improve care. The panel addressed the need for innovative new models of care that increase access and value.



**Ken Cohen, MD**, Executive Director of Clinical Research, Optum



**Joon Lee, MD**, Executive Vice President, UPMC and President, UPMC Physician Services\*



**Paul Mueller, MD**, Regional Vice President, Mayo Clinic Health System



**Lisa Rotenstein, MD**, Medical Director for Population Health, Brigham and Women's Hospital

## At the Tipping Point: How to Prepare for Our AI Future

Artificial intelligence is on the cusp of wider application across many industries with the potential to have major impacts. In this fireside chat session, a preeminent AI expert discussed the key challenges and limitations of the technology, cutting through the hype to address what society needs to do to prepare for the future.



**Martial Hebert, PhD**, Dean, School of Computer Science, Carnegie Mellon University



**Joon Lee, MD**, Executive Vice President, UPMC and President, UPMC Physician Services\*

## Novel Technologies and the Promise of Greater Patient Access

A focus on value is driving care closer to the home. In this panel, experts explored new solutions that are enabling hospital-at-home and the forces supporting the trend. They also discussed cutting-edge technologies on the horizon that may allow for more robust care delivery outside traditional health care settings.



**Ellen Beckjord, PhD**, Vice President, Population Health and Clinical Optimization, UPMC Health Plan



**Michael Boninger, MD**, President, UPMC Innovative Homecare Solutions



**Patrick Jordan**, Director, Virtual Access, Boston Children's Hospital



**Mark Zhang, DO**, Medical Director, Brigham Digital Innovation Hub

## The Biotech Investors View

The collapse of Silicon Valley Bank, rising interest rates, and economic uncertainty — these issues are weighing on investors and could impact biotech venture capital. Experienced investors discussed the trends and what they mean for health care innovation now and in the future.



**Khalil Barrage**, Managing Director, Invus Group



**Marijn Dekkers, PhD**, Chairman, Novalis Capital Partners



**Tanya Joseph**, Managing Director, Cowen and Co.



**Matthias Kleinz, DVM, PhD**, Executive Vice President, UPMC Enterprises

## Role of Interoperability for Innovation

In this fireside chat, the leader of the Office of the National Coordinator (ONC) at the U.S. Department of Health and Human Services provided an update on the regulatory landscape influencing data interoperability and discussed the implications of enhanced data sharing for innovation across the health care ecosystem.



**Chris Carmody, MBA**, Chief Technology Officer, UPMC



**Micky Tripathi, PhD**, National Coordinator for Health Information Technology, HHS

\*Note: Dr. Lee became CEO of Emory Healthcare on July 1, 2023.

## Getting to New Payment Models that Drive Innovation

Bringing together leading experts from the provider, payer, pharma, and policy arenas, this panel discussed the growing need for innovation around payment models that can ensure broad access to new therapies for all patients.



**Mike Carusi**, General Partner, Lightstone Ventures



**Kaha Hizanishvili**, Associate Executive Vice Chancellor, Market Growth and Transformation, UMass Chan Medical School



**Ellen Lukens**, Deputy Director, CMS Innovation Center



**Chronis Manolis**, Chief Pharmacy Officer, UPMC Health Plan

## Utilizing Data to Drive Patient Engagement

Solving the challenge of patient behaviors could unlock vast improvements in outcomes and costs. This panel of experts addressed the role of technology for better utilizing patient data and delivering insights to patients and providers to increase adherence to care plans.



**Aman Mahajan, MD, PhD, MBA**, Professor, University of Pittsburgh and UPMC; Executive Director, UPMC Perioperative and Surgical Services; Senior Medical Advisor, UPMC Enterprises



**Amy Meister, DO**, Associate Chief Medical Officer, UPMC Health Plan



**Shiv Rao, MD**, Co-founder and CEO, Abridge



**Paul Varghese, MD**, Clinical Lead for Health Informatics, Verily

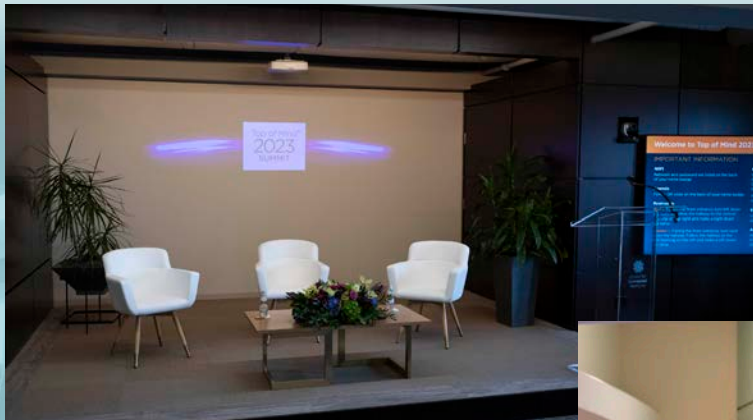


# About the Center for Connected Medicine

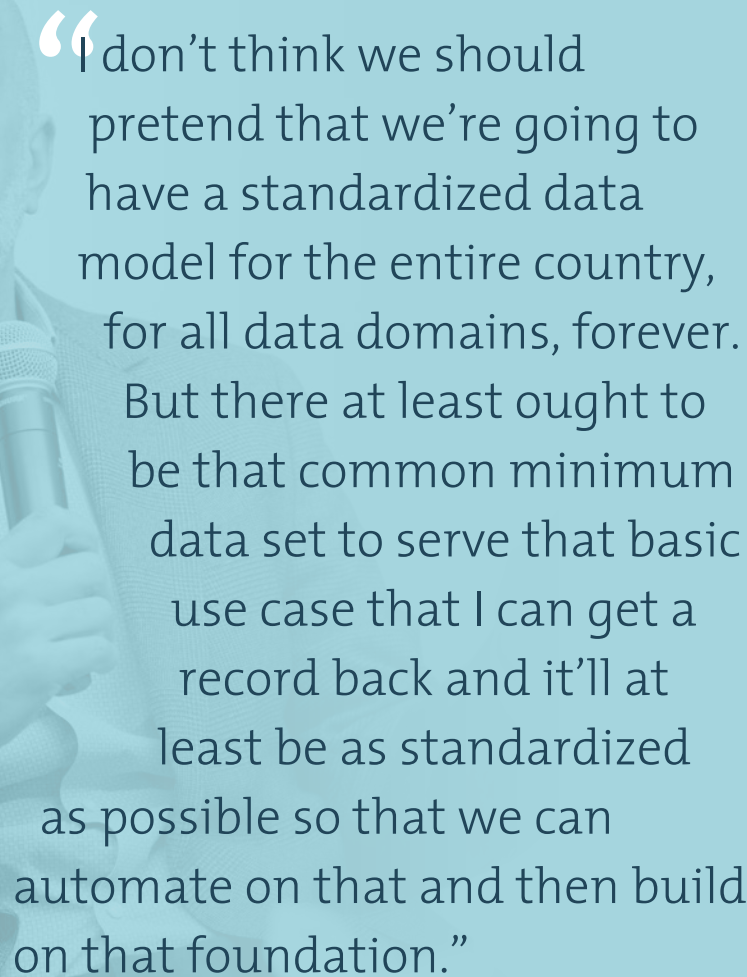

The Center for Connected Medicine (CCM) at UPMC is defining the future of the modern health system through programming that informs, connects, and inspires leaders and innovators in health care. Collaborating with a network of experts from across the health care ecosystem, the CCM focuses its research and events on consumer-centered solutions, digital transformation, and scientific and medical innovation.



[Connectedmed.com](http://Connectedmed.com)

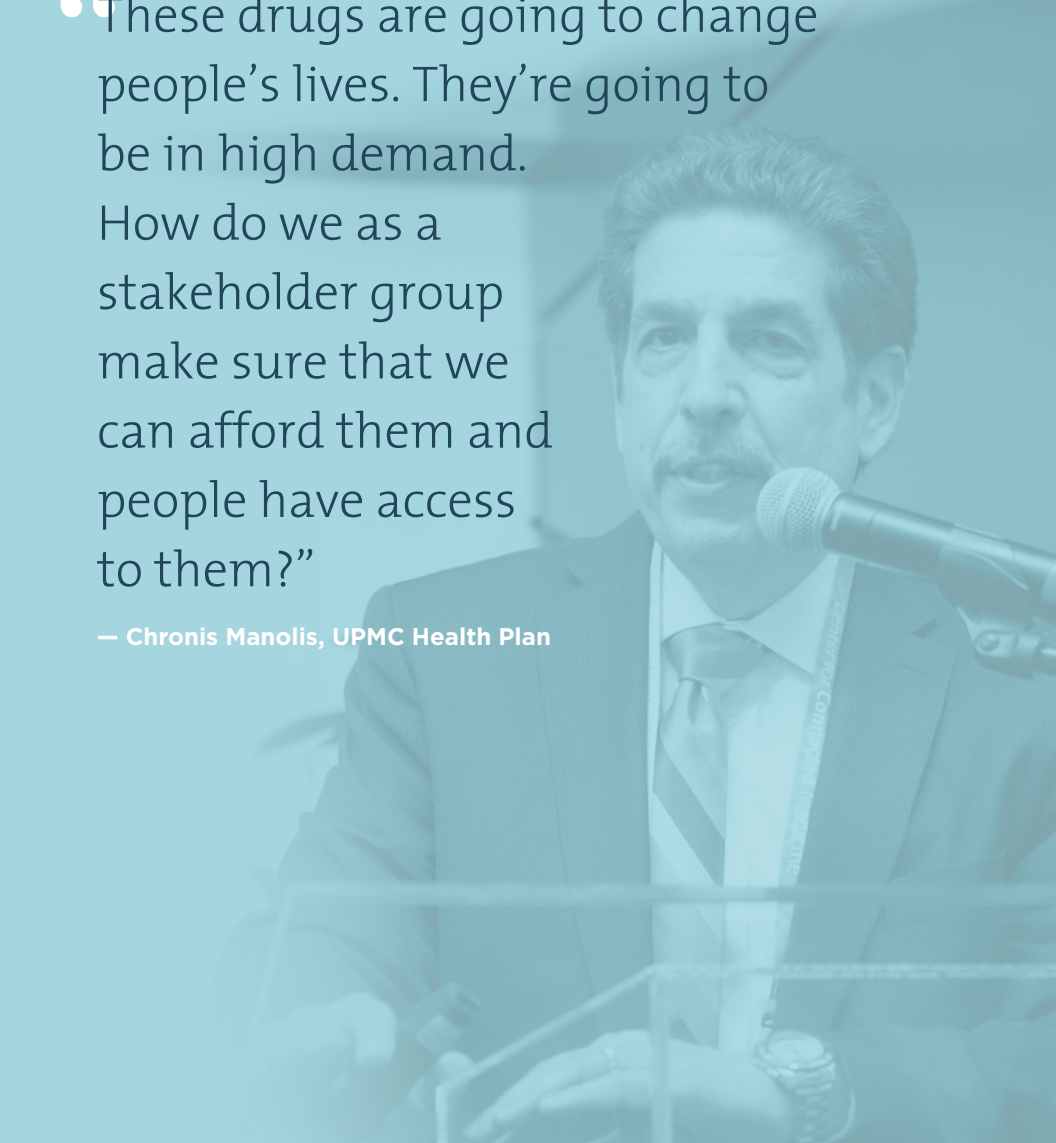






“I don’t think we should pretend that we’re going to have a standardized data model for the entire country, for all data domains, forever. But there at least ought to be that common minimum data set to serve that basic use case that I can get a record back and it’ll at least be as standardized as possible so that we can automate on that and then build on that foundation.”

— Micky Tripathi, PhD, U.S. Department of Health and Human Services



“These drugs are going to change people’s lives. They’re going to be in high demand. How do we as a stakeholder group make sure that we can afford them and people have access to them?”

— Chronis Manolis, UPMC Health Plan



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