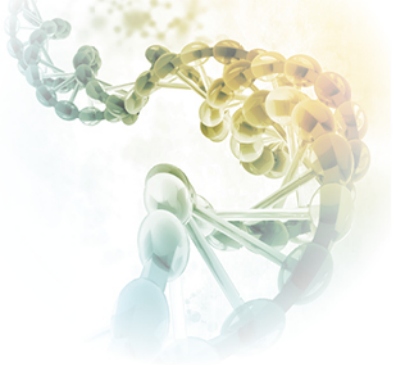

MEDICAL INDUSTRY LEADERSHIP INSTITUTE

CONVENE 2018
CONFERENCE SUMMARY

CONVENE 2018 was the inaugural Medical Industry Leadership Institute (MILI) conference focusing on the trends, insights, and implications of data science in healthcare.

Why data science? Because data is at the core of personalized and precision medicine, healthcare reimbursement, marketing, medical and pharmaceutical device development, and supply chain management. Advances in analytics, computation, and new rich data sources will change healthcare as we know it.

Navigating this transformation requires leadership, education, research, and collaboration. MILI is at the nexus of academia, business, and the medical industry, and so we launched CONVENE as a forum to engage professionals across this ecosystem in an ongoing dialogue. Aligned with the Carlson School of Management's philosophy – "business as a source for good" – CONVENE is intended to be a platform for identifying how big data and artificial intelligence can and should be used within healthcare and its related fields as a source for good.

CONFERENCE OVERVIEW

Cognitive technologies are rapidly evolving to imitate human intelligence, augmenting and even, in some cases, replacing human decision-making. These advances are heralded, yet CONVENE 2018 asked a pressing question: what tensions and consequences arise when human intelligence intersects with artificial intelligence?

Since these tensions exist throughout the lifecycle of advanced analytics, from development to reimbursement, the CONVENE agenda was purposefully crafted around three specific goals:

- How to **BUILD** technologies to improve health without causing harm
- How to **USE** tools to enhance care while avoiding disruptions to care and workflow processes
- How to **PAY** for the enhanced care guidance informed by predictive analytics while avoiding the cost and risk of non-value added services.

Each goal was addressed in a uniquely curated session that included a University of Minnesota faculty member as well as an industry executive. Then, a skilled moderator probed into each speaker's point of view during a panel discussion. Tremendous value was created as academicians were enlightened by business realities and executives were informed by research evidence. This dual insight, in fact, is key to CONVENE: Insights become innovation and innovation leads to positive, sustainable change when teaching, learning, and listening all converge.

CONFERENCE SESSION INSIGHTS

Among CONVENE's key takeaways, we see fruitful starting points for addressing the tensions and realizing the promise of artificial intelligence.

- **Hardwire empathy into healthcare.** In her keynote address, Dr. Bridget Duffy explained the importance of human-to-human interaction in healthcare and laid out ten foundational principles for establishing a connected healing system.
- **Collect data about the quality of data.** Randy Schiestl and Steve Johnson described how data-enlightened organizations measure data quality to avoid data waste and decay.
- **Use untraditional data sources to meaningfully inform personalized medical and health care.** Kurt Waldenbaugh and Lana Yarosh differed in their view regarding ethical use of data, ownership, and privacy, but agreed that this information's value ultimately lies in its potential to individualize care.
- **Do not rely on artificial intelligence and advanced analytics to decrease cost—yet.** Genevieve Melton-Meaux and Bart Phillips explored how the adoption of data science tools requires algorithmic transparency and interoperability if cost-savings are to become tangible, rather than theoretical.
- **Value-based payment needs value-based data.** Traditional medical claims data are insufficient for assessing the clinical, financial, and social value of care informed by artificial intelligence tools. Hannah Neprash and Garrett Black urged the integration of social determinants of health data into claim payment systems.
- **Science, data, regulation, and business need to evolve together.** Concluding CONVENE with an Executive Spotlight session, John Hammergren underscored the teamwork needed to create meaningful and sustainable innovation—as well as the idea that individuals must ultimately retain the power to make the healthcare choices that are right for them.

We hope that CONVENE's speakers, panel discussions, and illuminating conversations stimulated new ideas, new insights, and new relationships around the value and impact of data science in healthcare. Read on for more information on each session.

CONFERENCE SESSION SUMMARIES

HARDWIRING EMPATHY INTO HEALTHCARE

As healthcare stakeholders urge leaner operations and technology and ever-evolving data sources suggest more personalized, individualized care, health practitioners are getting burned out. Some 73% of doctors say they wouldn't encourage their children to follow in their footsteps. Patients, too, are exhausted, sensing, as they fill out form after form, that even when it comes to their health, they are little more than a number. How can we right this ship? By realizing that, for every inefficiency we identify and strip from the healthcare system, we must reinsert a point of empathy and care, for patients and practitioners alike.

Humanizing healthcare for the system's sustainability and better patient outcomes means recentering clinical practice to include paying careful attention to human-to-human interaction, the experience of the physical space of caregiving, and yes, even allowing room for spirituality. Dr. Bridget Duffy presented ten steps for reforms, suggesting that innovators focus on changes that build trust and emphasize humanity as avidly as they create and leverage data. Through technology and interdisciplinary teamwork, we can both accelerate and ease change in the healthcare landscape, for patients and clinicians alike.

BUILDING DATA ANALYTICS

When we create new medical devices, the analytics—the metrics by which we measure success and failure and refine each iteration—are built in from the start. But what about when we create new data systems? Randy Scheistl explained how only good data can be a good guide when it comes to creating holistic, effective, and empathetic systems of care. And, as Steve Johnson put it, gathering good data requires building a solid foundation and custodial oversight into data collection and regularly measuring and refining the efficacy of our data collection. For Johnson, interoperability of innovative data systems will be key in making big data good data.

USING NONTRADITIONAL DATA

When Twitter trends and Google searches can detect flu outbreaks before the CDC, it's clear that good data can come from unexpected sources. Kurt Waldenbaugh of Carrot Health explained how data from social media, real estate transactions, consumer purchasing and other non-traditional sources can be used to predict healthcare risk –personalized, targeted risk – better than traditional claims data systems and actuarial data. Carrot Health is collecting data on the entire US population and mapping the uneven distribution of health outcomes by geography to tease out the associations that best nudge specific patient groups toward healthier living. Lana Yarosh discussed how to glean insights from unstructured

text and focused on her analysis of one million journal entries from CaringBridge.org, a website that allows patients and their families to share healthcare information with friends and relatives. Using natural language processing techniques, she identified actionable insights regarding patients' healthcare journeys. Though Waldenbaugh and Yarosh cautioned that nontraditional data sources have challenges and limitations including accuracy, privacy, and interpretation, both agree that these data sources can meaningfully inform personalized care.

USING ARTIFICIAL INTELLIGENCE TO REDUCE HEALTHCARE COSTS

Medtronic's Bart Phillips is quick to point out that, even as devices shrink, the data they are providing has ballooned. To the applied statistician, that has meant calling for more actionable data, not just *more data*, if the cost-savings potential of predictive analytics is to come to fruition. Genevieve Melton-Meaux, a colorectal surgeon and Fairview M Health's Chief Data and Informatics Officer, spoke about using that actionable data in practice, emphasizing the need to build profitability in a landscape of eroding margins. Ultimately, by accurately collecting, communicating, analyzing, and acting upon patient data through artificial intelligence systems, providers become not basement-dwelling IT shops, but highly informed and cost efficient vehicles for ever-improving patient outcomes. As moderator Rahul Koranne pointed out, healthcare is on track to become 25% of the nation's GDP—but the ROI for AI-informed healthcare remains unknown. Transparency across health systems may be key in building better AI and better health along the way.

VALUE-BASED REIMBURSEMENT AND ARTIFICIAL INTELLIGENCE

When a retinopathy machine needs only a minute to diagnose a patient, Hannah Neprash explained, the three components of healthcare reimbursement are unprepared to determine its value—and health-related AI is proliferating. Blue Cross and Blue Shield of Minnesota's Garrett Black deftly carried this insight into a discussion of recentering reimbursement by focusing on value-based healthcare, so that the cost-savings resulting from using social data to inform care and increase treatment adherence accrue and patients' access is eased. That is, if AI's increased precision can attend to the social determinants of health in ways that result in healthier communities and lowered costs, reimbursers' bundled payments and performance schemes can support the effort to all patients' benefit.

EVOLVING TOGETHER

In CONVENE's concluding panel, the U's Steve Parente and McKesson's Chair and CEO John Hammergren were joined by Archelle Georgiou to discuss the future of health care and data analytics. Key insights included the need for collaborative leadership from business, academia, practitioners, and regulators, as well as daring innovation of the kind that leads to entirely new systems, rather than add-on products that render change iterative, rather than transformative.