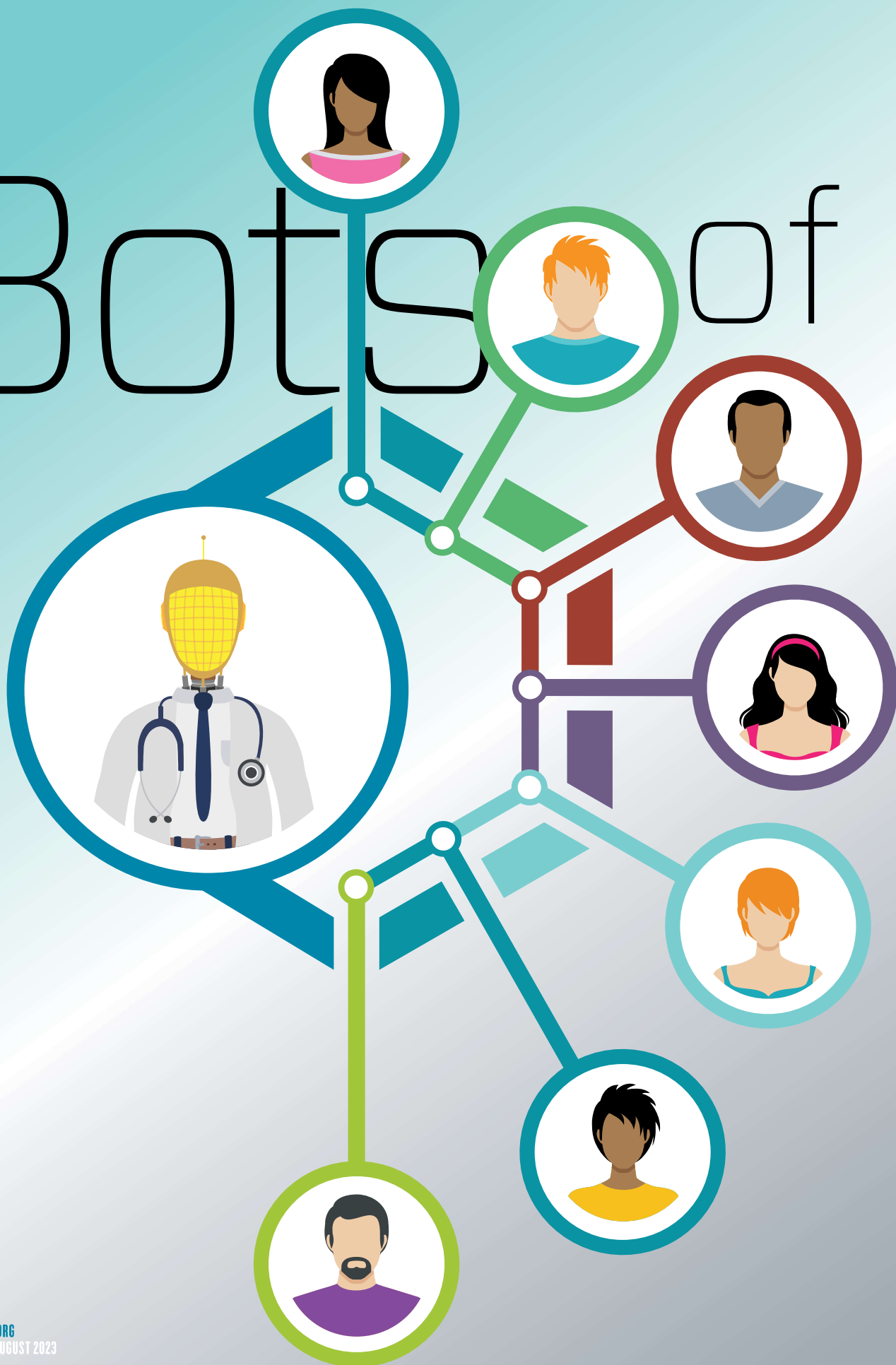


Bots of



Gold

Using artificial intelligence to reach marginalized communities

 **Featuring Marijka Grey, MD, MBA, FACP, and Brisa Urquieta de Hernandez, PhD**

At the 2022 Innovation, Quality & Leadership Conference, AMGA welcomed CommonSpirit for a special peer-to-peer breakout session detailing how the health system leveraged artificial intelligence (AI) alongside community health workers to create a successful outreach program in areas with some of the nation's lowest vaccination rates. Titled "A Commitment to Health Equity: Use of Artificial Intelligence to Reach Marginalized Communities," the presentation was led by CommonSpirit's Physician Enterprise System Vice President of Ambulatory Transformation and Innovation Marijka Grey, MD, and her colleague, Brisa de Hernandez, PhD, system director, operations, Lloyd H. Dean Institute for Humankindness and Health Justice.

Laying the foundation for the pair's discussion, Grey acknowledged the growing implementation of AI and automation in alleviating the burden of repetitive physician tasks in an effort to reproduce standard workflows and reduce burnout. As Grey explained, however, CommonSpirit was also utilizing AI in very specific ways across its national footprint.

▶ In the Pacific Northwest, the health system had designed bots for pre-visit planning and order proposals; when a patient comes in for a visit, their chart has already been scanned and potential orders have been created for the

physician to approve based on any recognized care gaps.

- ▶ In the West, AI is being used for clinical intake and virtual registration. Approximately 48 hours before a visit, patients receive a text through which they can then upload their insurance card, medical history (if they are a new patient), and any other relevant information.
- ▶ In the Southwest, CommonSpirit turned to AI for COVID-19 screenings before in-person visits, sending texts to patients 48 hours before a scheduled visit to ensure that they were not showing signs of symptoms.
- ▶ Finally, in the Midwest, a partnership with IBM Watson was developed to create health-maintenance alerts and outreach.

The Health Equity Lens

For all the benefits AI can provide the country's network of health systems, Grey made a point to relate that the technology has not always worked to the benefit of marginalized communities.

"Just as with EHRs [electronic health records], if there is garbage going in, there is garbage coming out," said Grey. "However you program the AI determines how the AI behaves."

Grey cited a recent mishap at another organization's system in which Black patients were made to seem less sick due to the way the AI algorithm was set up. She emphasized that

Figure 1
Patient Stratification Tool

Category	1 Point	2 Points
Age	18–64	≥65
Race/Ethnicity	White	BIPOC
Number of High-Risk Medical Condition Diagnosis	1	≥2
Social Vulnerability Index Score	<0.75	≥0.75

when it came to CommonSpirit’s approach to AI, it was with a lens on health equity, working with various divisions within CommonSpirit—including its Office of Diversity, Equity, Inclusion, and Belonging—to ensure that no inherent errors or fallacies in the code would crop up.

Equitable COVID Outreach

Moving into the heart of their presentation, Grey and de Hernandez provided insight into CommonSpirit’s COVID-19 vaccine outreach efforts. Once they obtained the vaccine and initiated shots to their patient population, data began reflecting that there were significant numbers of patients who were not being treated—many in marginalized communities. In an effort to figure out how best to reach these patients and provide them with the vaccine, CommonSpirit partnered with the Deloitte Health Equity Institute to implement an “Equitable COVID Vaccine Outreach: Patient Stratification Tool.”

Integrating the services of GetWell, a virtual patient navigation solution that has the ability to tailor its outreach with a more personable methodology, CommonSpirit piloted its new outreach effort in Central Coast, CA, and Little Rock, AR, using their new patient risk stratification tool to prioritize who to reach out to first (see Figure 1). Once data were filtered by age, race, number of high-risk medical conditions, and social vulnerability index score, CommonSpirit determined the targets of their outreach.

They sent an initial text message informing the patient that they were eligible to receive a COVID-19 vaccine. The patient could then sign up for the vaccine through a provided link. In the event that the patient could not register themselves on their own or were facing some other unforeseen barrier, a flesh-and-blood virtual

navigator would be engaged to assist via additional texts or a phone call.

As essential as the AI was in delivering the names of these unvaccinated patients and automated the first point of connection, Grey and de Hernandez emphasized the necessity of real-life physician champions. “When you have an organization as big as ours, when you approach as this national entity, you’re perceived as Big Brother,” said Grey. “But if you come from a local approach, it’s much better. Nationally, we provided the resources, but it was the local teams that truly did the work.”

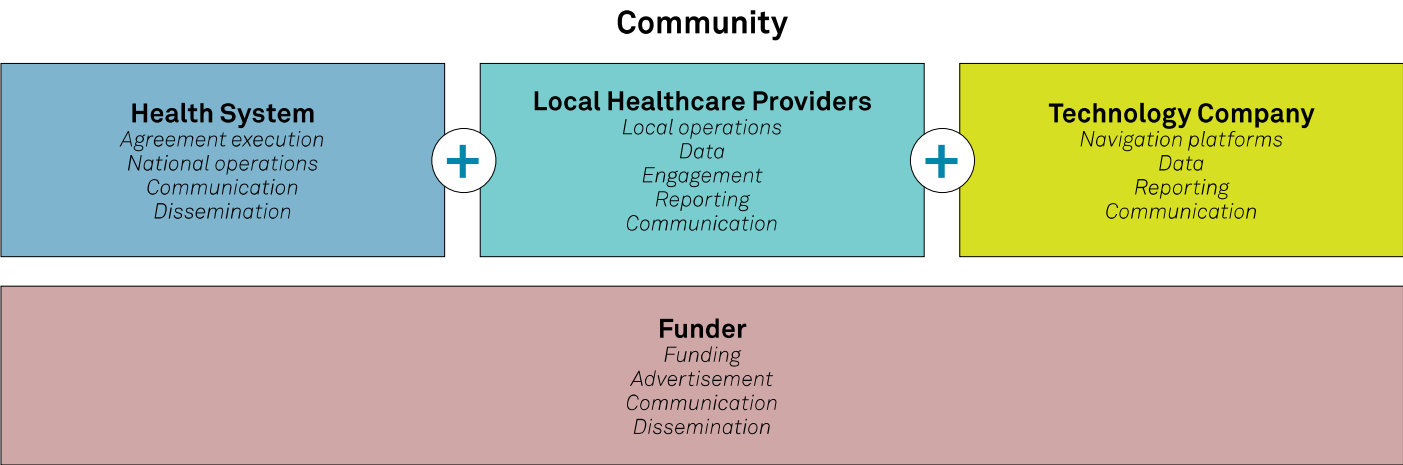
Community-Based Participatory Outreach

This path of combining the technological with the personable stems from what de Hernandez referred to as a community-based participatory research approach, which involves collective, reflective, and systematic inquiry through which community stakeholders engage as equal partners in the process of educating and improving practices, with the hope of bringing about social change.¹

“Prior to actually going live with this, in developing this AI, we wanted to make sure we brought in the voices of not just the community, but also the physician champions and their partners to create what this was going to look like,” said de Hernandez (see Figure 2). “For us, the structure of what it all looked like was us, the health system at the national level, bringing in the resources; the local healthcare providers and their key stakeholders; and then the technology company, which in this case was the GetWell team, having these conversations about how we adjust the scripting based on what’s happening in the community. And then,

“Just as with EHRs, if there is garbage going in, there is garbage coming out. However you program the AI determines how the AI behaves.”
 —Marjka Grey, MD

Figure 2
Structure of Collaboration for AI



of course, at the table was also the funder—the Deloitte Health Equity Institute—which was a key thought partner, as it was important to make sure that what they were learning through this process could be shared across a lot of other engagements and work that they had. We were all at the same table, and this was all encased with the understanding that the community was going to inform what this process looked like.”

Outcomes

By the end of the endeavor, CommonSpirit reached out to approximately 50,000 patients with a little more than 20,000 connections with patients. From that respondent cohort, the system had less than a 1% opt-out rate.

Among the key findings of the initiative was that bidirectional engagement in Spanish-speaking populations was 5% higher than the overall group, but that they also had the highest percentage of people who reported not yet being vaccinated. Self-reported vaccination rates for those 65 years and older were also lower than the group at large. Finally, self-reported vaccination rates were the highest among the Black population.

Ultimately, Grey and de Hernandez said that CommonSpirit came away from the initiative with several lessons. First, that the local context is crucial when designing anything around AI. It is essential to acknowledge the lived experiences of a given community and how it is changing,

making sure the technology is flexible enough to adapt to the change. Another lesson was the benefit of having physician champions on the ground who not only use their community-based networks, but also help the higher tier of leadership at CommonSpirit understand what they are hearing directly from their patients.

Perhaps the most important lesson resulted from this two-way dialogue. Once an opportunity to engage with patients finds its footing in a particular area, the opportunity for engagement in other areas becomes a natural progression.

“You start asking them about barriers, and it’s not just going to be barriers about the vaccine, but broader barriers,” said de Hernandez. “And a lot of the conversations that have been happening during these sessions have been around those social drivers.” [CRJ](#)

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Reference

1. B.U. de Hernandez, M. Díaz, D. Foster, et al. 2022. A Health System’s Approach to Using CBPR Principles with Multi-sector Collaboration to Design and Implement a COVID-19 Vaccine Outreach Program. *Journal of Health Care for the Poor and Underserved*, 33(4S): 234-242. doi: 10.1353/hpu.2022.0172. PMID: 36533472.