



Research and innovation in patient care

2023 Clinical Outcomes Annual Report





Executive summary

You may know Optum as the nation's largest ambulatory care organization. But you may not realize Optum is also a leading medical research institution. In 2022, we enrolled more than 28,000 patients in investigator-initiated research studies, multi-institutional academic partnerships and industry-funded trials. It is all part of our effort to reimagine health care and advance the Quadruple Aim.

This Clinical Outcomes Annual Report highlights seven research studies from 2022. Optum physician-scientists led each discovery and shared their results in peer-reviewed journals and regional conferences. The report also highlights a few of our programs and initiatives that:



Support

medical
research



Promote

clinician career
development



Improve

patient
outcomes



Enhance

the patient
experience

At Optum, our commitment to research and innovation fuels our pursuit of what's possible in health care. Guided by scientific discovery, we're helping people live healthier lives and making the health system work better for everyone.

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Together, reimagining health care through scientific exploration

Exceptional medical research starts with a genuine care for patients and a desire to make a difference. Optum shares this mindset with some of the most well known research facilities in the world: John Hopkins, the Mayo Clinic, Stanford Medicine. We ask new questions and explore what's possible, sharing our findings with the world.

In recent years, in line with this commitment, our Office for Provider Advancement (OPA) has partnered with hundreds of physicians to bring their research studies to life. Providing extensive resources in areas such as compliance, regulatory, patient enrollment and data analysis. Some of these physicians are new to medical research. Others are more mature, eager to share what they know and learn from younger colleagues. Whether new or seasoned researchers, their path began the same way: with a question that captured their imagination and awakened their curiosity.

That is what it was like for me. In 2020, soon after joining OPA, I was thinking about the relationship between physician or clinician burnout and turnover. As a practicing family physician, I am quite aware of how much my professional happiness depends on my working relationships with members of my care team. Curious about whether my experience was unique, I designed a study (with support from my colleagues at Optum) to measure and determine how teamwork relates to provider experience, burnout and intent to stay. Seeing our results published in the Journal of Managed Care two years later was a thrill.¹ It inspired me to develop a follow-up study focusing on the direct relationship between provider experience and patient satisfaction.

What's captured your imagination lately? Is there technology or innovation you're using that is worth publishing? What provocative question do you want to answer? If you're starting to feel curious, it's time to partner with us. Together we can achieve our Quadruple Aim of patient satisfaction, clinician well-being, high-quality outcomes and affordable health care. And we can further strengthen the reputation Optum enjoys as a company reimagining health care through scientific exploration and research publication. I hope you will join us. We have amazing opportunities ahead of us, and I am excited to do this important work together!

Amy Nguyen Howell, MD, MBA, FAAFP

Chief, Office for Provider Advancement, Optum Health



“

As a practicing family physician, I am quite aware of how much my professional happiness depends on my working relationships with members of my care team.”

Amy Nguyen Howell, MD, MBA, FAAFP

Chief, Office for Provider Advancement
Optum Health

1. ajmc.com/view/teamwork-measure-relates-to-provider-experience-burnout-and-intent-to-stay



The Quadruple Aim

A singular vision to improve patient and provider experience

Optum has a north star that guides our efforts toward greater innovation. The Quadruple Aim: patient satisfaction, clinician well-being, high-quality outcomes and affordable health care.

These common goals bring our organization together as we strive to improve health care across the globe.

Our efforts in these areas are ever evolving. We share a commitment to research, experience, health equity, partnership, culture, patient safety, advocacy and quality of care. We strive to infuse these tenets across all aspects of our organization. As such, we ensure our providers can meet current and future health challenges while safeguarding and maximizing patient outcomes.

Diagnostics and the next pandemic

Delivering and processing PCR tests at scale

Innovations in testing could be the best line of defense against future pandemics

The Everett Clinic, part of Optum, is a large outpatient clinic system with 30 sites across Washington's Puget Sound. In early 2020, the clinic identified the first case of "domestic" COVID-19. This was the first person to contract the virus who had not traveled outside the United States.

"Everett was also the city where, a month earlier, the first patient in the United States had been hospitalized with COVID-19 after returning from China," says Dr. Tu, an infectious disease specialist at The Everett Clinic and an Optum Center for Research and Innovation Clinical Scholars awardee. "That was clear evidence COVID-19 was spreading undetected in our community. I immediately knew we were in big trouble."

Detecting COVID-19 was critical to keeping people safe. But, at this early stage in the pandemic, the only way to test for COVID-19 was through the public health laboratory system. And that system could only test people who had traveled from China and were sick enough to be hospitalized.

This limitation set Dr. Tu on a path toward improving testing methods.

A first-step solution

In partnership with Abbott Laboratories, Dr. Tu led a landmark study very early in the pandemic demonstrating that nasal swabs collected by patients were equivalent to nasopharyngeal swabs collected by health care workers.

"This was one of several studies that lowered the barriers to testing," Dr. Tu says. "Patient-collected swabs greatly decreased the infection risk to health care workers, decreased the amount of personal protective equipment required and were much more comfortable for patients."

He then demonstrated that foam and polyester nasal swabs were equivalent to the specialized swabs already being used for testing.¹

"This provided an inexpensive alternate material for manufacturing swabs," says Dr. Tu. "We then proved that polyester swabs could be placed in a dry tube without transport media and still be used for testing."



Yuan-Po Tu, MD

Infectious Disease Specialist,
The Everett Clinic

Achieving the Quadruple Aim

Patient satisfaction



Self-administered tests are more comfortable for patients. And faster laboratory testing eliminates wait times.

Clinician well-being



Clinicians face less burden and reduced chances for infection when patients can self-administer testing.

High quality outcomes



Increasing test speed to the highest number of people during a pandemic keeps people safe and can potentially reduce the number of patients who become severely ill.

Affordable health care



Alternative testing supplies reduce costs and limit necessary personal protective equipment (PPE), and improved transport methods decrease the chances of waste.

Improved diagnostics for future pandemics

Dr. Tu's seemingly small and incremental discoveries revolutionized COVID-19 testing. Ultimately, they resulted in widespread patient self-collected home antigen testing.

Laboratory-based polymerase chain reaction (PCR) tests remain the most sensitive and accurate tests available and are often the first test developed to detect novel diseases.

"We can develop PCR tests rapidly, and they are more accurate than at-home tests," Dr. Tu says. "But during the COVID-19 pandemic, labs could not process PCR tests fast enough to reach the level of testing we needed. We wanted to know how quickly we could deliver and process PCR tests at scale."

For the past three years, Dr. Tu and his colleagues have worked to develop a simple, fast and large-scale PCR testing process. It starts with an easy way to make testing appointments via your mobile phone. That system connects with testing sites, which use matching barcodes to link your testing sample to your patient record.

Self-administered nasal tests in media-free tubes make collection easy and less prone to contamination.

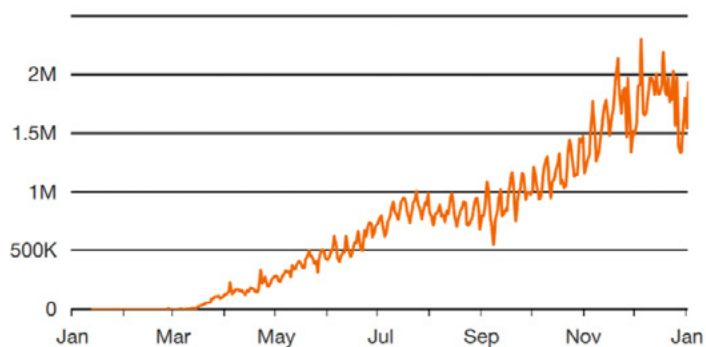
"We've been able to reduce the time it takes to run a test from three hours to 70 minutes," says Dr. Tu. "During the pandemic, a typical lab could process 1,000 PCR tests per day. With this new technology, that same lab can process 100,000 tests per day."

"Testing will be one of the keys to minimizing the impact of the next pandemic," Dr. Tu says. "Knowing who is infected will help keep each of us and our loved ones safe while minimizing the impact on society."

The need to do more

"COVID-19 is not the last pandemic we will face. But with faster, better testing at scale, the next pandemic does not have to be as disruptive as COVID was," says Dr. Tu.

Number of Daily Covid Tests



Tests performed in the U.S. January 2020 to January 2021

1 Dr. Yuan-Po Tu presented these findings in a TEDx Portland talk on May 23, 2023. tedxportland.com

Tu, Yuan-Po, et al. "Swabs collected by patients or health care workers for SARS-CoV-2 testing." *The New England Journal of Medicine*, July 2020. [nejm.org/doi/full/10.1056/NEJMc2016321](https://doi.org/10.1056/NEJMc2016321)

Two-sided risk Medicare Advantage vs. fee-for-service Medicare programs

How fully accountable care improves quality outcomes

A comparison across eight key quality metrics

Many studies have compared fee-for-service Medicare to Medicare Advantage. But, within Medicare Advantage, most clinicians are still being paid using fee-for-service models.

Kenneth Cohen, MD, Executive Director of Translational Research with Optum Care, says only two known studies had previously looked at a Medicare Advantage subset where physicians were taking two-sided risk – accepting full responsibility for outcomes and total cost of care.

“Both studies showed improved outcomes. Specifically, reduced mortality and fewer unnecessary emergency department visits – among the groups taking two-sided risk,” Dr. Cohen says. “So, we set out to compare the Optum Health Medicare Advantage population to the fee-for-service Medicare population.”

Dr. Cohen and the team pre-specified eight metrics and studied how they compared in two-sided risk Medicare Advantage versus fee-for-service Medicare models. Metrics included:

- Hospital admission
- Admission to hospital through the emergency department
- Readmission to hospital within 30 days
- Emergency department visit
- Avoidable emergency department treat-and-release
- Emergency department return visit within 30 days
- Inpatient stroke or heart event
- Chronic obstructive pulmonary disease (COPD) exacerbation resulting in hospital admission

The team then used the OptumLabs data warehouse to review the Medicare Advantage population and pulled a 5% sample of fee-for-service Medicare patients. For analysis, they developed two groups of ~160,000 patients each, matched closely according to age, sex and location.



Kenneth Cohen, MD, FACP

Executive Director of
Translational Research,
Optum Care

Achieving the Quadruple Aim

Patient satisfaction



In a fully accountable model, patients recognize and benefit from a high-level of care coordination.

Clinician well-being



Clinicians want to do what's right for their patients. With easy-to-use evidence-based platforms, they can experience significant improvement in the quality of care they practice.

High quality outcomes



The care coordination required within a two-sided risk Medicare Advantage model leads to improved outcomes across multiple quality measures.

Affordable health care



Removing wasteful and harmful care improves overall affordability.

Results

Across all eight metrics, Dr. Cohen and the team saw clinically meaningful differences. They were all in favor of two-sided risk Medicare Advantage.

“The concept of a fully accountable delegated physician organization is fundamental to the future success of our health care system,” Dr. Cohen says.

“Right now, about 85% of physicians are exclusively in fee-for-service arrangements, some with the potential for an upside-only bonus.

“There are emerging data points that show when a physician organization takes full risk for quality and total cost of care, patient outcomes improve.”

Additional metrics could expand study

Dr. Cohen says this study was quite granular, but researchers could replicate the design to focus on major areas of clinical care, like diabetes, COPD and heart failure.

“We can do much more,” Dr. Cohen says. “Future studies could bring in additional quality metrics, like cancer screening, immunization rates and patient-reported outcomes. We fully intend to broaden the scope of the study and replicate it by looking at a wide swath of clinically important areas going forward.”

Eliminating low-value care

“About one-third of the care delivered in the United States is either wasted or harmful. It doesn’t improve health outcomes or quality of life,” Dr. Cohen says.

“Yet, there is ongoing utilization of that one-third of care, frankly, because we pay the same for low-value care that we do for high-value care.

“When physicians accept responsibility for total cost of care, one of the first things they do is get rid of low-value care because it doesn’t help patients and drives up costs.”

Table 2. Unadjusted Outcome Measures

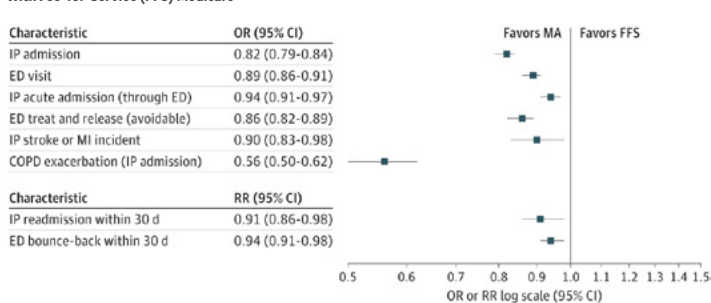
| Outcomes | Study group ^a | | | P value ^b | SMD, MA vs FFS |
|---|--------------------------|----------------|----------------|----------------------|----------------|
| | All | FFS | MA | | |
| Entire cohort | | | | | |
| No. of patients | 316 312 | 158 156 | 158 156 | NA | NA |
| IP admission | 35 906 (11.35) | 19 874 (12.57) | 16 032 (10.14) | <.001 | 3.02 |
| ED visit | 63 587 (20.10) | 33 819 (21.38) | 29 768 (18.82) | <.001 | -0.06 |
| IP acute admission through ED | 25 556 (8.08) | 13 452 (8.51) | 12 104 (7.65) | <.001 | -0.03 |
| ED treat and release (avoidable) | 20 395 (6.45) | 11 147 (7.05) | 9248 (5.85) | <.001 | -0.05 |
| IP stroke or MI incident | 3470 (1.10) | 1676 (1.06) | 1794 (1.13) | .04 | 0.01 |
| COPD subcohort | | | | | |
| No. of patients | 48 964 | 15 088 | 33 876 | NA | NA |
| COPD exacerbation (COPD IP admission) | 1430 (2.92) | 682 (4.52) | 748 (2.21) | <.001 | -0.13 |
| IP admission subcohort | | | | | |
| No. of patients (had ≥1 IP admission during the follow-up period) | 32 977 | 18 369 | 14 608 | NA | NA |
| 30-d IP readmissions | 5024 (15.23) | 2952 (16.07) | 2072 (14.18) | .001 | -0.04 |
| ED visit subcohort | | | | | |
| No. of patients (had ≥1 ED visit during follow-up period) | 59 123 | 31 472 | 27 651 | NA | NA |
| Second ED visit within 30 d | 12 123 (20.50) | 6829 (21.70) | 5294 (19.15) | <.001 | -0.03 |

Abbreviations: COPD, chronic obstructive pulmonary disease; ED, emergency departments; FFS, fee-for-service; IP, inpatient; MA, Medicare Advantage; MI, myocardial infarction; NA, not applicable; SMD, standardize mean difference.

^a Unless otherwise indicated, data are expressed as No. (%) of patients.

^b Calculated using the χ^2 test

Figure. Forest Plot of Adjusted Measures of Association for 8 Outcome Metrics, Comparing Medicare Advantage (MA) With Fee-for-Service (FFS) Medicare



Groups were matched exactly on age group, sex, and state and adjusted for baseline inpatient (IP) and emergency department (ED) visits after matching. COPD indicates chronic obstructive pulmonary disease; MI, myocardial infarction; OR, odd ratio; and RR, rate ratio.

Seeing pediatric COVID-19 vaccination from a clinician's point of view

A first-time look at the provider experience

Barriers faced by pediatricians and family practice providers

Since the start of the pandemic, many published research studies looked at parental perceptions related to the COVID-19 vaccine. These reports answered questions about vaccine interest and resistance. Provider perceptions, however, went largely unstudied.

In 2021, a team of researchers conducted the first analysis of the perceptions, feelings and experiences of individual pediatric and family practice providers.

The research team included Lloyd Fisher, MD, a pediatrician and the Reliant Medical Group Chief Medical Informatics Officer. The team wanted to understand how providers felt about vaccine distribution, logistics, administration and their conversations with parents and older patients.

The team gained valuable and actionable insights from providers across a variety of practice models about the barriers to vaccinating children.

Findings: the barriers to effective vaccine distribution

In their qualitative analysis, Dr. Fisher and team found providers faced barriers across several categories, including:

- Lack of training, education and resources
- Logistics around storage and waste
- Parental resistance to the COVID-19 vaccine
- Perceptions about vaccine availability
- Perceptions about parent needs
- Staff shortages

Actionable insights

Understanding the barriers to effective and efficient COVID-19 vaccination offers lessons for future vaccine rollouts. The most important insight, Dr. Fisher says, is providers need easy access to information and clear messaging they can share with their patients.



Lloyd Fisher, MD

Chief Medical Informatics
Officer and Pediatrician,
Reliant Medical Group

Achieving the Quadruple Aim

Patient satisfaction



Patients and families want a provider who will listen and guide them. Patients will feel cared for and heard when providers have more time, tools and resources

Clinician well-being



Ensuring providers have useful and timely information to do their jobs can improve their overall satisfaction and well-being

High quality outcomes



Study after study shows giving vaccinations increases care quality by reducing the incidence of vaccine-preventable illnesses and complications from those illnesses.

Affordable health care



Improving vaccine education can increase the number of vaccinated patients. It's one of the cheapest ways to lower health care costs.

“Resources exist for having conversations around vaccine hesitancy,” Dr. Fisher says. “So, we must make them available to providers and practices. But we also need to remember a one-size-fits-all approach to messaging doesn’t exist. We must consider where patients and providers come from. And we must ensure providers have enough time and staff to provide adequate counseling to patients and their families.”

Next steps

Dr. Fisher says the next step in this research is quantifying the qualitative data.

“We must understand the needs of different practices. From large groups to academic practices to solo clinics,” he says. “We have this qualitative data, but we’d like to understand if we can get data that shows us who needs which type of materials to ensure all children are getting the same type of care, regardless of the care model.”

Dr. Fisher also hopes to see recognition of the lengthy discussions health care professionals need to have with parents as routine child visits become more complicated.

“Parents have more questions; they are legitimate and should be encouraged,” Dr. Fisher adds. “If there is vaccine hesitancy, for example, we want to be able to explain and reassure. So often, time constraints limit pediatricians. We need a different mechanism for delivering well-child care.

“Optum is in a great position to look at how we’ve been offering care and develop the best way to go

forward. The pandemic showed us we can do better. It revealed that parents and children need more time – maybe not more time with the pediatrician, but perhaps with other care team members who can provide counseling services to drive understanding.”

Advocacy in action

Dr. Fisher has been front and center dealing with the COVID-19 pandemic and its effect on children.

In addition to his role at Optum Reliant Medical Group, Dr. Fisher serves as Division Chief of Community Pediatrics at University of Massachusetts (UMass) Medical School, where he is the liaison between the area’s academic medical centers and the pediatricians in private practices. He also served as president of the Massachusetts chapter of the American Academy of Pediatrics (AAP) during the first two years of the COVID-19 pandemic.

“This research helped me in my role with the AAP,” Dr. Fisher says. “I was able to advocate at the state level to hold practices harmless for vaccine waste, a big concern at the outset of the vaccine rollout. Having these results in writing helped to make policy changes.”

A summary of research published in Preventive Medicine Reports

Lemon, Stephanie C., et al. “Clinician perspectives on pediatric COVID-19 vaccination: A qualitative study in central and western Massachusetts.” *Preventive Medicine Reports*, October 2022. doi.org/10.1016/j.pmedr.2022.101966

Comparing 3 widely available medications to prevent severe COVID-19

COVID-OUT study a successful model for decentralized clinical trials

An evaluation of metformin, ivermectin and fluvoxamine

In the early stages of the COVID-19 pandemic, treatment options remained limited. Monoclonal antibody therapies were expensive and not widely used. Plus, antiviral medications targeting SARS-CoV-2 weren't available yet.

Providers needed medications that could prevent their patients from progressing to severe COVID-19 or long COVID.

Researchers from Optum and the University of Minnesota conducted the COVID-OUT trial. This "at-home" clinical trial tested three already-available oral, generic medications for early outpatient treatment of SARS-CoV-2 infection.

Kenneth Cohen, MD, Executive Director of Translational Research with Optum Care, was part of the COVID-OUT trial team.

"Based on early research, we hypothesized that metformin and fluvoxamine might prevent progression to severe COVID-19," Dr. Cohen says. Doctors widely prescribed ivermectin without sufficient data on efficacy, and we included it to answer whether it offered any benefit definitively. "We already knew through a pilot study that metformin had significant antiviral activity, so comparing that to other medications in use or in discussion was an important step toward getting proof into the hands of providers."¹

Results

The COVID-OUT research team selected specific measured outcomes before the study launched. To be viable outpatient options for preventing severe COVID-19 or long COVID, each medication had to show clinically significant improvements in each of the following:

- Deaths
- Emergency department visits
- Hospitalizations
- Hypoxemia



Kenneth Cohen, MD, FACP

Executive Director of
Translational Research,
Optum Care

Achieving the Quadruple Aim

Patient satisfaction

Trials like COVID-OUT advance care, ensuring patients benefit from evidence-based science.

Clinician well-being

New research gives providers access to important clinical data they can use for decision-making in their own practice.

High quality outcomes

The observed reduction in hospitalizations and deaths with metformin could have a meaningful impact on patient outcomes. Particularly in areas where monoclonal antibodies and COVID-specific antivirals aren't widely used or readily available.

Affordable health care

¹ Boulware, D.R., and Murray, T.A., et al. "Randomized trial of metformin, ivermectin, and fluvoxamine for COVID-19." The New England Journal of Medicine, Aug. 18, 2022. [nejm.org/doi/10.1056/NEJMoa2201662](https://doi.org/10.1056/NEJMoa2201662)

The researchers found that none of the medications tested resulted in improvement across all four study endpoints. However, with hypoxemia removed from the measured outcomes, metformin showed the potential for reducing emergency department visits, hospitalizations and death.

“Many clinicians may be unaware of the antiviral effect of metformin,” Dr. Cohen says. “The odds ratio for emergency department visits, hospitalizations and death was 42% lower in the study group on metformin.”³

“This is particularly important because metformin is a widely used medication. We know the risk of severe disease with COVID-19 is much higher in the subset of patients with diabetes. Because many of these patients are already on metformin, it’s worth noting that even with access to newer antivirals these patients might still benefit from metformin’s protective effects against severe COVID-19. Also, the monoclonal antibodies and antiviral drugs are unaffordable in many parts of the world.”

A unique study design

The trial was unique in the way the team recruited and collected data. With the United States in lockdown during the pandemic, researchers had to find participants without bringing them to a facility.

“This was one of the very first fully decentralized trials,” says Dr. Cohen. “We recruited across

the country, consented electronically, shipped medications and used home-based and self-collection methods for lab tests. We also developed electronic and telehealth methods for gathering follow-up data.”

“This decentralized study,” Dr. Cohen says, “is a great model for other research teams to follow.”

Next steps

COVID-OUT has led to several spin-off studies. For example, long-term follow-up queries of study participants revealed that metformin meaningfully decreased the incidence of long COVID. This research was published in June 2023 in The Lancet and received attention from researchers around the world.² A commentary on the study was published in the British Medical Journal.

The COVID-OUT team has also measured viral load in stool samples and has studied and published data on symptom scores as a function of vaccination.

Advancing the science of medicine

“This trial advances the science of medicine. Obviously, patients stand to benefit, but clinicians also stand to gain. Providing new science to them, especially science developed within their community, is something that resonates.”

Table 2. Primary Composite End Point and Its Components.*

| End point | Metformin | | | Ivermectin | | | Fluvoxamine | | |
|--|--------------------|--------------------|--------------------------------------|---------------------|--------------------|--------------------------------------|-------------------|--------------------|--------------------------------------|
| | Active (N=663) | Control (N=660) | Adjusted Odds Ratio (95% CI) † | Active (N=410) | Control (N=398) | Adjusted Odds Ratio (95% CI) † | Active (N=334) | Control (N=327) | Adjusted Odds Ratio (95% CI) † |
| | no./total no. (%) | | | no. / total no. (%) | | | no./total no. (%) | | |
| Primary composite | 154/652 (23.36) | 179/653 (27.4) | 0.84 (0.66-1.09) | 105/407 (25.8) | 96/391 (24.6) | 1.05 (0.76-1.45) | 79/329 (24.0) | 80/321 (24.9) | 0.94 (0.66-1.36) |
| Hypoxemia only | 147/650 (22.6) | 158/651 (24.3) | 0.94 (0.72-1.22) | 96/406 (23.6) | 88/390 (22.6) | 1.04 (0.75-1.46) | 71/328 (21.6) | 73/320 (22.8) | 0.93 (0.64-1.35) |
| Emergency department visit, hospitalization, or death | 27/652 (4.1) | 48/655 (7.3) | 0.58 (0.35-0.94) | 23/406 (5.7) | 16/394 (4.1) | 1.39 (0.72-2.69) | 18/329 (5.5) | 15/324 (4.6) | 1.17 (0.57-2.40) |
| Hospitalization or death | 8/652 (1.2) | 18/655 (2.7) | 0.47 (0.20-1.11) | 4/406 (1.0) | 5/394 (1.3) | 0.73 (0.19-2.77) | 6/329 (1.8) | 5/324 (1.5) | 1.11 (0.33-3.76) |
| Death | 1/657 (0.2) | 0/655 (0) | NA | 1/408 (0.2) | 0/396 (0) | NA | 0/330 (0) | 0/325 (0) | NA |

* The primary end point was a composite of hypoxemia (≤93% on home oximetry), emergency department visit, hospitalization, or death by 14 days. Analyses used concurrently randomized controls and were adjusted for SARS-CoV-2 vaccination and other trial medications. The primary analysis was performed in the modified intention-to-treat cohort. Comparison of absolute event rates across groups is not valid because of differences in timing of enrollment, which resulted in differences in vaccination rates and the prevalence of SARS-CoV-2 variants.

† Adjusted odds ratios and 95% confidence intervals are based on a logistic-regression model that was adjusted for baseline vaccination status and the receipt of other medications during the trial; multiple imputation was used with chained equations and predictive mean matching. The complete case-analysis results without imputation are provided in Table S4; the analysis in the intention-to-treat population is presented in Tables S6 to S8

2. Bramante, Carolyn T., et al. "Outpatient treatment of COVID-19 and incidence of post-COVID-19 condition over 10 months (COVID-OUT): a multicentre randomised, quadruple-blind, parallel-group, phase 3 trial. The Lancet Infectious Diseases, June 8, 2023. doi.org/10.1016/S1473-3099(23)00299-2

3. Wise, Janet. COVID-19: "Metformin reduces the risk of developing long term symptoms by 40%, study finds." BMJ, June 8, 2023. doi.org/10.1136/bmj.p1306

Fecal transplant to treat recurrent urinary tract infection

Leveraging a microbiome approach

A potential treatment option for recurrent multidrug-resistant infections

The gut holds 100 trillion organisms, many of which positively and negatively impact the health of the brain and immune system.

Unhealthy microbes, called facultative anaerobes, live inside or outside the body and can cause infection. Healthy microbes, called strict anaerobes, thrive inside the gut so long as facultative anaerobes do not proliferate and take over.

Herbert DuPont, MD, Chief Scientific Officer of the Optum collaborative partner Kelsey Research Foundation and clinician at the Kelsey-Seybold Clinic, is an infectious disease physician with a long-standing interest in the microbiome. In 2022, he and a team of scientists submitted for publication a case study highlighting the successful treatment of a recurrent urinary tract infection (UTI) using fecal transplant.

Fecal transplant case study

Dr. DuPont and the team's case study focused on a 50-year-old woman with von Willebrand disease and multiple antibiotic allergies. For 15 years, she had suffered from recurrent UTIs stemming from complications of a hysterectomy. Doctors had used every antibiotic possible to control her UTIs. However, these efforts only resulted in her developing a drug-resistant infection with extended-spectrum b-lactamase (ESBL)-producing *Klebsiella pneumoniae*.

The patient and her providers pursued fecal microbiota transplantation (FMT) to avoid daily courses of IV antibiotics. Fecal transplants have been around since the 1970s. They use an oral encapsulated lyophilized stool product already under investigation to treat *Clostridioides difficile* (C. diff) infections.

Dr. DuPont and the team followed the patient for 18 months after FMT, tracking any new UTIs and analyzing their associated microbes. During this time, no new infections with ESBL-producing organisms occurred.



Herbert DuPont, MD

Chief Scientific Officer and Physician,
Kelsey Research Foundation

Achieving the Quadruple Aim

Patient satisfaction



The delivery method (an enteric-coated pill) and the possible positive results of FMT are patient satisfiers. Especially considering the quality-of-life improvements possible with this treatment method

Clinician well-being



High quality outcomes



Affordable health care



Note: Dr. DuPont's research is particularly important for the patient satisfaction facet of the Quadruple Aim.

Notable insights

Dr. DuPont says the success of this type of treatment highlights its potential for combating hospital-acquired infections.

“I think we need to take a microbiome approach to infection control, including appropriate use of narrow spectrum antibiotics coupled with encouraging patients to eat a microbiome-friendly diet,” Dr. DuPont says. “This could reduce many hospital-acquired infections, such as C. diff.

“Patients who develop C. diff have often received many courses of antibiotics. They harbor large quantities of antibiotic-resistant bacteria. We’ve shown those resistant forms disappear when we do a fecal transplant.”

Next steps

Dr. DuPont says the microbiome, including the use of fecal transplant, has implications beyond infection control. He’s published research highlighting the many ways this treatment has been used, including for symptom improvement in Parkinson’s disease.

He’s now studying how to develop disease-specific probiotics from isolated strains of good bacteria collected from patients who have responded well to FMT.

The need to do more

Dr. DuPont says taking a microbiome-based approach has the potential to revolutionize the way hospitals think about infection prevention and control. These go beyond current efforts aimed at improving the way appropriate antibiotics are prescribed and used.

“Right now, we use antibiotics to fight infection, but antibiotic resistance has led to increased infection rates. Antibiotic stewardship programs have helped, but we can continue to do more.”

A microbiome approach, he says, is just the start.

“Hospitals could routinely test patients’ microbiome to determine if they are harboring resistant organisms,” Dr. DuPont says. “They could then use that information to change diet and nutrition in the hospital to encourage positive microbiome changes.”

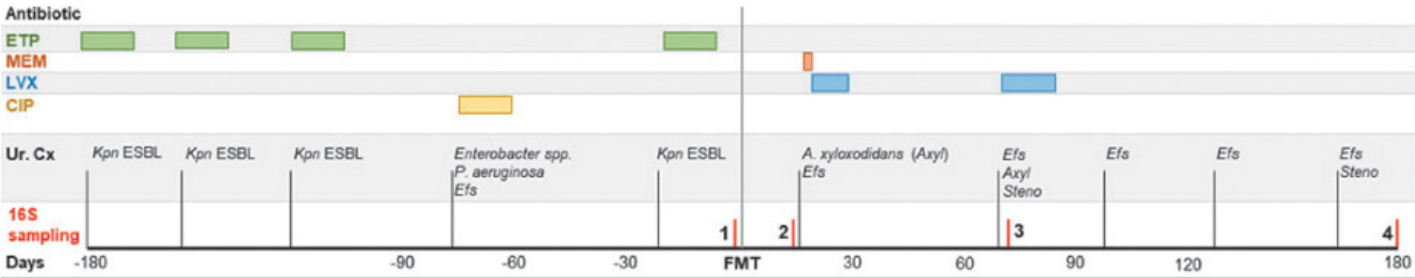


Fig. 1. Timeline of clinical course. Numbers indicate approximate timing of urine and stool collection. AxyI, Achromobacter xylosoxidans; CIP, ciprofloxacin; Efs, Enterococcus faecalis; ETP, ertapenem; FMT, fecal microbiota trans-plantation; LVX, levofloxacin; MEM, meropenem; Steno, Stenotrophomonas maltophilia; Ur. Cx, urine culture.

A case study published in Microbial Drug Resistance

Miller, William R., et al. “A case of successful treatment of recurrent urinary tract infection by extended-spectrum β-lactamase producing Klebsiella pneumoniae using oral lyophilized fecal microbiota transplant.” Microbial Drug Resistance, January 2023. [liebertpub.com/doi/10.1089/mdr.2022.0031](https://doi.org/10.1089/mdr.2022.0031)

Teamwork and its impact on the provider experience

A six-question measure to determine the health of a health care team

A deeper look at provider experience, burnout and intent to stay

Provider burnout has grown to remarkably high levels. The relationship between burnout and turnover threatens to make current and expected physician shortages even worse.

Many studies and surveys have pointed out how communication and work environments can affect burnout. But few studies explore how health care teams impact the provider experience and satisfaction.

In 2022, a team led by Amy Nguyen Howell, MD, Chief of the Office for Provider Advancement at Optum Health, studied whether provider perceptions of their care team's effectiveness impacted their work experience and intent to stay with their organization.

"This work is a labor of love for me," says Dr. Nguyen. "So, when we began talking about our bi-annual clinician survey here at Optum, I posed the question: 'Wouldn't it be great to see if there was a clear correlation between teamwork and burnout, intent to stay and overall provider experience?'"

Building the right measure

The first step toward understanding teamwork's impact on provider satisfaction was to build a measurement tool. Dr. Nguyen and her team analyzed data from the 2019 Optum bi-annual employee and provider experience survey, including a validated burnout measure and assessments of provider experience and intent to stay.

The researchers developed a six-question team effectiveness measure (TEAM) which focused on efficiency, communication, continuous improvement and leadership. They then analyzed the associations between TEAM scores and survey results.

Dr. Nguyen's research group found positive teamwork scores were associated with a lower burnout rate, a more favorable provider experience and a higher intent to stay.



**Amy Nguyen Howell, MD,
MBA, FAAFP**

Chief, Office for Provider
Advancement, Optum Health

Achieving the Quadruple Aim

Patient satisfaction



Clinician well-being



Ensuring providers have useful and timely information to do their jobs can improve their overall satisfaction and well-being.

High quality outcomes



Affordable health care



Note: Focusing on clinician well-being has an effect on patient satisfaction, high quality outcomes and affordable health care.

“As they say, ‘teamwork makes the dream work,’” says Dr. Nguyen. “Getting the right teams together and ensuring they have the resources and training they need will encourage organizational loyalty and longevity.”

The TEAM index, Dr. Nguyen says, could be used by organizations to determine the strength of their clinical teams.

The impact of a team on value-based care

“Optum exists to deliver value-based care,” Dr. Nguyen says, and the research shows more than teams as an antidote to burnout. “We’re here to deliver value-based care, and that requires teamwork. Without the fundamentals of an impactful team, value-based care falls apart.”

“Value-based care is about quality of care, experience, access and affordability, safety and eliminating unnecessary waste. If we can deliver on the Quadruple Aim, patients will be happy, and providers will experience less burnout. And we can only achieve these goals with a good team focused on coordinated care.”

Next steps

The next steps in this research are already underway, says Dr. Nguyen. A second manuscript based on this study’s data will focus on how provider experience impacts the patient experience and, as a result, an increase in net promoter score (NPS).

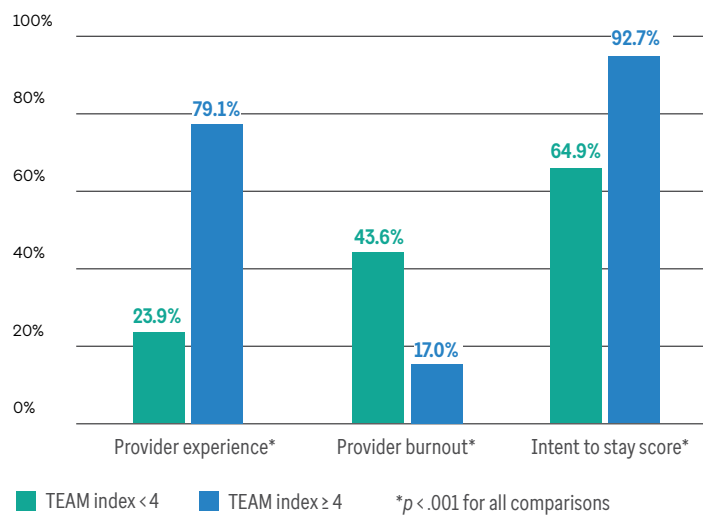
The six-item TEAM measure

Dr. Nguyen and her team used six survey questions to gauge team effectiveness. They were:

- 1. The degree to which my care team works efficiently together is poor, marginal, satisfactory, good or optimal
- 2. I am encouraged by my leadership to collaborate with other providers
- 3. My medical group makes it a priority for clinical staff to communicate about patient care (e.g., daily huddles and other activities in the clinic)
- 4. My team makes continuous improvements in the delivery of patient care
- 5. People I work with demonstrate excellence in everything we do
- 6. My medical group is effectively managed and well-run

“It’s important for organizations to ask themselves if they’ve truly invested in their teams in a systematic way. Beyond processes and procedures, have they taken a step back to really look at their people and develop their clinical teams?”

Figure 1. Outcome by TEAM Index Scores: High vs Low



A summary of research published in the American Journal of Managed Care

Howell, Amy Nguyen, et al. “Teamwork measure relates to provider experience, burnout, and intent to stay.” American Journal of Managed Care, July 2023. ajmc.com/view/teamwork-measure-relates-to-provider-experience-burnout-and-intent-to-stay

Diagnosis and care recommendations for rare congenital anomaly

Rigorous work-up leads to conservative CHD (Congenital Heart Disease) treatment approach

Shared decision-making is best for patient outcomes and satisfaction

Congenital heart defects (CHDs) are rare. The Centers for Disease Control and Prevention estimates CHDs affect just 1% of births (about 40,000) annually in the United States.¹ Doctors diagnose many CHD cases at or before birth. Still, many go undetected for years or even well into adulthood.

Luigi Pacifico, DO, FACC, a cardiologist with the Reliant Medical Group, says physicians often only identify CHDs in adulthood after symptoms develop.

“Many times, the clinical exam and EKG may not pick up the congenital abnormality,” Dr. Pacifico says. “So, when a young person presents with chest pain, we usually do not expect blockage or stenosis. Pericarditis or myocarditis may present with chest discomfort; these are more common. Illicit drug use may present with coronary spasms or thrombosis.”

In 2022, Dr. Pacifico and a team published a case study highlighting the diagnostic work-up and treatment approach for an adult patient with a rare CHD.²

Case presentation

The case study focused on a 42-year-old man complaining of sporadic chest discomfort and occasional dizziness. Despite mildly elevated lipids, the patient had no other high-risk factors for cardiopulmonary disease.

The medical team conducted several noninvasive tests as part of a detailed work-up, including a stress test, which gave normal results.

A coronary computed tomography angiogram (CTA) revealed the patient’s right coronary artery was on the wrong side of his heart.

“The patient’s right coronary artery was sandwiched between the pulmonary artery and the aorta,” Dr. Pacifico says. “This is a very rare case, with a prevalence of about 0.26% in the general population. We happened to find it because of our rigorous work-up. We’re very aggressive in figuring out what we’re dealing with when it comes to young patients with chest pain.”



Luigi Pacifico, DO, FACC

Reliant Medical Group

Achieving the Quadruple Aim

Patient satisfaction



A complete work-up, identification of CHD and further testing for ischemia provided a level of assurance to the patient. In addition, including the patient in the decision-making process increases their satisfaction

Clinician well-being



Some clinicians go a lifetime without seeing a rare case of CHD. The finding, subsequent work-up and testing provided discovery, teaching and publishing opportunities that can add fulfillment to a physician’s career.

High quality outcomes



Safely providing the best evidence-based option for patients leads to high-quality outcomes.

Affordable health care



A rigorous work-up, literature search and shared decision-making eliminated the need for more invasive and expensive open-heart surgery

Treatment approach

To determine the best approach to treatment, Dr. Pacifico and the team first needed to determine the presence or absence of ischemia. They placed a temporary transvenous pacemaker via the patient's groin up to the right atrium and performed real-time pacing with an EKG. Fortunately, they observed no evidence of ischemia.

With no ischemia, Dr. Pacifico and the team determined the patient's chest discomfort was unrelated to his CHD.

"If we had proven ischemia, this patient would have needed an operation to bypass the right coronary artery or transpose the right coronary from the left to the right side," says Dr. Pacifico. "We determined, however, that there was no benefit in operating on this patient, which our literature search confirmed."

After a thorough exploration, shared decision-making resulted in a conservative approach to treatment in this patient. There was no need for surgical intervention and only close follow-up in the outpatient setting.

The value of clinical case studies

Case studies provide valuable insights into rare conditions when prospective studies aren't possible.

"Most cardiologists will never see a case like this," Dr. Pacifico says. "But if they do, it's important they have resources to help determine the best course of treatment."

"Case studies like ours are incredibly helpful not only to cardiologists but also to cardiologists-in-training and catheterization lab teams."

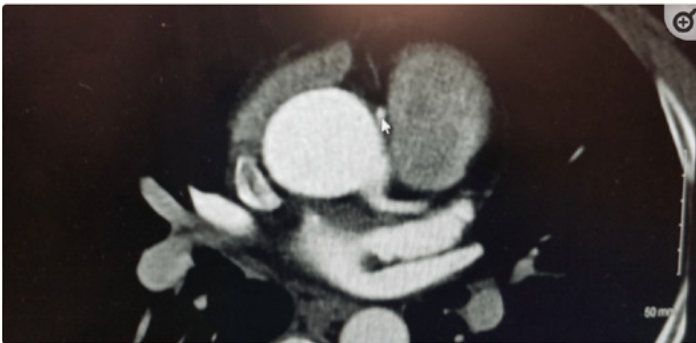


Figure 1

Interarterial course of right coronary artery as seen on computed tomography angiogram

1. [cdc.gov/ncbddd/heartdefects/features/kf-chd-estimates-us.html](https://www.cdc.gov/ncbddd/heartdefects/features/kf-chd-estimates-us.html); What are congenital heart defects?

2. Ramsaran, Eddison, et al. "Anomalous interarterial right coronary artery: Approach to a high-risk course." Cureus, January 2022. [ncbi.nlm.nih.gov/pmc/articles/PMC9636899/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9636899/)

Optum research and innovation projects

| Type of research | Number of projects |
|------------------------|--------------------|
| Implementation Science | 1 |
| Interventional | 58 |
| Observational | 33 |
| Phase I | 8 |
| Phase I/II | 2 |
| Phase II | 26 |
| Phase II/III | 4 |
| Phase III | 101 |
| Phase IV | 9 |
| Program Evaluation | 10 |
| Quality Improvement | 15 |
| Registry | 5 |
| Total | 272 |

As of Q2 2023



61
clinicians engaged
in research



272
active trials



25
medical specialties



3,445
patients enrolled
year to date



Improving the provider and patient experience

New playbooks help our practices deliver on the five tenets of the patient experience

More than 100 million people interact with Optum Health each year in care practices across the United States. We aim for every interaction to align with the Optum 5 Tenets of Patient Experience (see graphic). These tenets identify what matters most to patients and reflect our commitment to caring for the whole person. And we recommend to our markets and businesses that they adopt the tenets.

In 2022, our provider and patient experience team created five digital playbooks (one for each tenet) as part of a comprehensive communication strategy. Each playbook is packed with best practices to improve the patient experience.

For example, the Warm and Welcoming Playbook offers guidelines and tips on topics including:

- First impressions with the office staff
- Timely communication for patients in the waiting room
- Staff collaboration and communication
- Privacy in the waiting rooms and exam rooms

Each of our markets and businesses can customize how they use the playbooks. Their patient experience lead helps prioritize which interventions to use. They provide coaching for their practice and engage in quarterly progress reviews. We encourage providers and staff to share additional best practices and resources online using our patient experience website.

We designed each playbook to increase the Net Promoter Score (NPS) associated with one of the tenets. Optum Health businesses use NPS to measure progress, then create action plans by identifying areas for improvement and selecting new interventions to improve continually.

Warm and Welcoming Playbook guidelines



First impressions with the office staff



Timely communication for patients in the waiting room



Staff collaboration and communication



Privacy in the waiting rooms and exam rooms

Culture 101 module shares our mission and vision with all new hires

Optum Health is growing rapidly, with new physicians and practices joining our national care delivery network each month. Every newly hired health care professional participates in an onboarding program that now includes a module called Culture 101. It focuses on our history, mission, vision and values.

The 45-minute session was developed in 2022 by the Office for Provider Advancement and Optum physicians and market leaders. It helps our local and regional businesses strive toward a shared vision and create a culture of one purpose, one system, one brand and one Optum



26

markets integrated Culture 101
into their new hire onboarding

5,000

new Culture Champions

Ambient scribing solution to expand to 1,300 physician users

Can technology help prevent physician burnout and attrition while improving productivity and the patient experience? Results from our one-year pilot of an automated scribing solution strongly indicate the answer is yes. So we're expanding the software platform's use to 1,300 physicians nationwide in the next two years.

The Nuance Dragon Ambient eXperience (DAX) is a clinical intelligence scribing solution. It accurately and efficiently documents patient encounters at the point of care. Each entry is quality-checked by a human and added to the electronic medical record (EMR) for provider review. DAX can save physicians up to 90 minutes in the EMR each day, at a fraction of the cost of employing scribes.

Financial support from the Optum Innovation Fund allows Optum Health to offer DAX licenses to physician practices for up to two years at no (or significantly reduced) cost depending on when they sign up. And the Optum Health experience team provides physicians with "white glove" service to ensure a successful implementation and ongoing support.



94%

of providers engaged in the
initial pilot stated DAX had a
positive impact on their burnout

79%

reported DAX created daily
time savings for them

Data on file

Provider Development Institute builds our pipeline of leaders

1,418 clinicians participated in career development activities in 2022

Provider Development Institute (PDI) programs help Optum physicians and advanced practice clinicians gain business and leadership essentials while equipping them to serve in leadership roles and advance the Quadruple Aim. The institute offers five programs (including an alum group), each developed by Optum for Optum clinicians.

PDI offers something for everyone. Whether new to medical practice, seasoned practitioners, or first-time leaders or executives. Program graduates tell us that PDI sets Optum apart as an employer of choice. Their favorite features include:

- Career development options at every career stage
- Cohort-based programs that encourage relationship-building with colleagues
- Opportunities to share best practices and solve problems together



YTD 2023 data points

924 PDI participants

89.6 Net Promoter Score for all cohort-based PDI programs

“

The soft and hard skills we learned during Climb were extremely well-thought-out, and our mentor pushed us to excel. Our group's business proposal ended up being presented to executives at the United Healthcare Group level, and elements of our project have been incorporated into employee wellness and corporate sustainability enterprise-wide.”

Darragh O'Carroll MD, ABEM

Medical Director, Utilization Management, naviHealth



Career development at every career stage

Provider Development Institute programs allow clinicians to progress from early career course offerings to more advanced educational opportunities.

Aspiring Leaders

Personal and professional growth opportunities for current and emerging leaders through two on-demand pathways: the business of medicine and leadership development.

Grove Leadership Essentials

Intended for new clinician leaders to ease the transition from clinical practice to first-time leadership and accelerate speed to confident proficiency.

Climb Professional Excellence

Didactic, small-group and case-study learning designed to accelerate professional performance by building business acumen.

Sequoia Fellowship Program

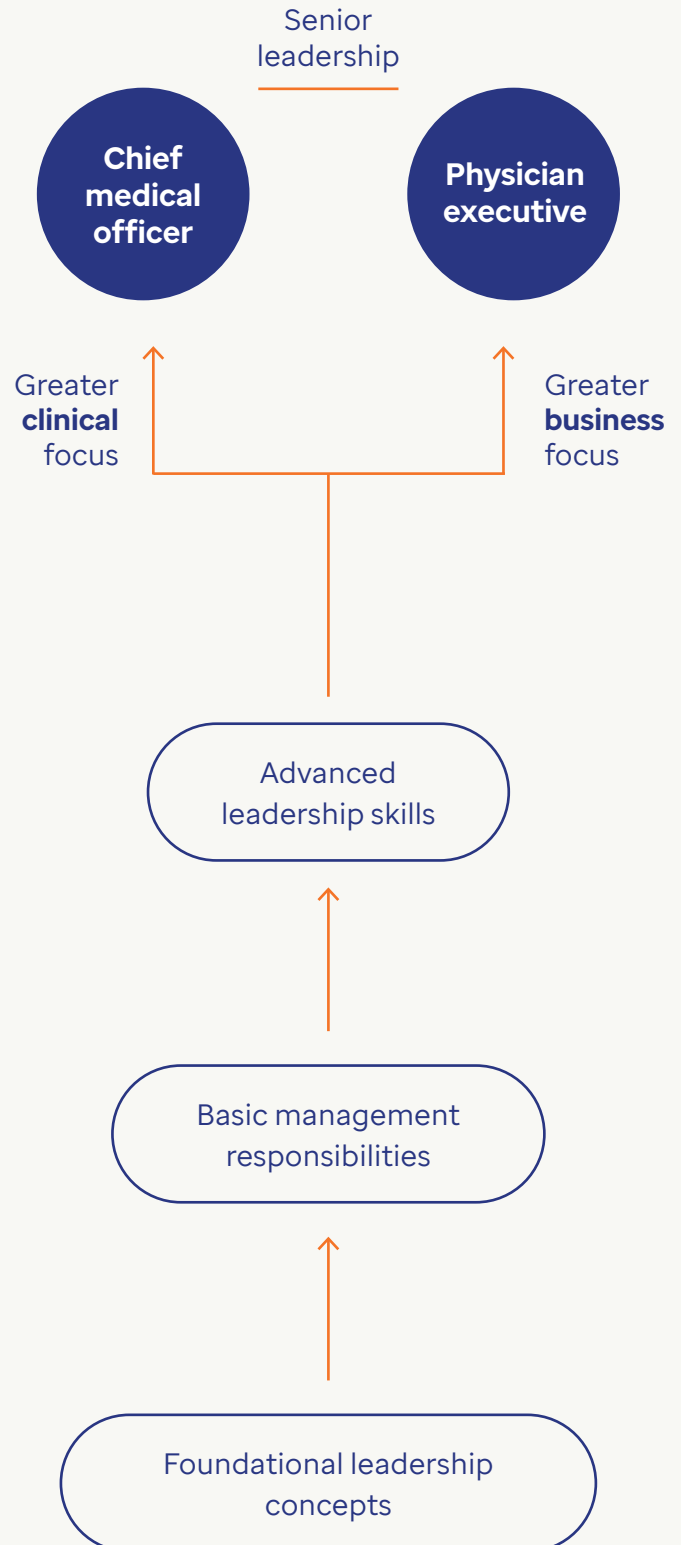
One-year program offering diverse experiential learning opportunities that help build leadership essentials and inspire insights into the business of health care.

Branching Out Program

Alums gather in a virtual session to discuss a high-interest topic presented by fellow PDI program graduates and other industry leaders.

In 2023, in response to the growing need for leadership skills and advanced value-based care knowledge, we launched two pilot programs: Dyad Leadership and Value-Based Care 201.

Career development at Optum





Research and innovation

Collaborating to empower science and evidence-based medicine

Our dedication to investigative advancement goes beyond simply developing novel therapeutics. The Optum Center for Research and Innovation (OCRI) takes our work a step further by creating partnerships between all business units to drive our research agenda in the pursuit of better patient health outcomes.

OCRI focuses on the five key components needed for quality research:



Innovation



Operational
support



Regulatory, quality
and compliance



Training



Education

Whether pursuing investigator-initiated research, a multi-institutional academic partnership or an industry-funded clinical trial, OCRI aligns all our efforts and increases awareness of the widespread impact made by our investigations.

OCRI research objectives for 2023

In 2023, we launched three programs:



Research scholarship

Continuing education grants to support staff, clinical trials or medical conference attendance



Clinical scholars

Funding to purchase equipment or support staff development for clinicians with research project ideas



Decentralized trials

Platforms that allow patients to participate in clinical trials virtually or via home health visits

OCRI aligns research into three portfolios



Enterprise research

This collaborative effort brings together primary business units at Optum and other partners to prioritize and publish scientifically rigorous projects that advance the Optum research agenda. In 2022, 17 manuscripts were accepted for publication.



Local research

This space enables markets to conduct local research through grants, pharma, medical devices or investigator-designed studies while ensuring regulatory and legal standards compliance. In 2022, over 200 clinical trials were conducted across the Optum Health network.



Partner research

This partnership between OCRI, Optum Ventures and other UnitedHealth Group entities supports piloting and testing products and services for the Optum patient population. Our Catalyst innovation program is currently exploring two innovative projects: biometric authentication and document automation.

Center of Excellence

In 2024, OCRI will launch as a Center of Excellence. Ongoing infrastructure planning during 2023 focused on creating a new service line to support hybrid or decentralized trials and new processes, artificial intelligence capabilities, policies and work streams to support scalable research throughout Optum Health.

Catalyst program

Innovation drives health care forward. However, implementing enterprise-wide improvements takes time. Launching projects and initiatives at a grassroots level is far more effective. This is because local clinical teams can quickly pivot to embrace new systems and protocols.

Catalyst brings together clinical, operations, technology and finance professionals to brainstorm pioneering solutions to workplace pain points. Together, our small and nimble expert teams can quickly scale new programs and test new ideas. We base each new project on first-hand input from our care delivery organizations (CDOs). And each project supports the four tenets of the Quadruple Aim: patient satisfaction, clinician well-being, high-quality outcomes and affordable health care.



Incubator team

Our Incubator team includes 50 designers, developers and product managers. They use zero-distance listening to design potential long-term solutions for the most important problems facing front-line providers. The Incubator team creates solutions through internal development, licensed solutions and external partnerships. To keep projects moving forward, the team plans to implement 70% of new projects within a year, 20% within two years and 10% within at least three years.

SWAT team

The SWAT team is a traveling team of solutioning experts from clinical, operations and technology. The goal of the team is to put these experts alongside providers and staff in the clinics to solve tactical problems and make their jobs easier.

Our cross-discipline SWAT team identifies opportunities to improve clinic efficiencies. Business and innovation experts work with our CDOs to reduce manual data entry; integrate lab and diagnostic equipment with the electronic medical record; improve single sign-on and network connectivity. The team has two aims:

- Design cost-effective, high-impact “wins” for local implementation promoting value-based care, patient and provider experience and operational efficiency
- Identify and test locally proven concepts for broader mentation



Current projects



PAC-MAN

Problem: Today, one in three chronic medications are not picked up from the pharmacy. Failing to adhere to primary medications increases emergency room visits, hospitalizations and avoidable complications. In addition, the 14-day claim reversal time frame doesn't provide a good opportunity to intervene and improve adherence.

Solution: PAC-MAN is a medication adherence solution that identifies patients least likely to pick up prescription medication. It also provides personalized outreach to help patients resolve medication pick up barriers. This model is embedded in the pharmacist workflow, and uses prescription, point-of-sale and insights from the model to identify patients who could benefit from phone or text outreach.

Outcome: With about 33,000 patients enrolled in two states, as of May 2023, PAC-MAN successfully engaged with 62% of the members needing outreach and delivered 55% adherence on those who previously hadn't picked up their medications. As of 2022, acute hospital admissions have dropped by 11.7% and emergency room visits decreased by 21%.



EasyCheck

Problem: The patient pre-visit check-in process is still largely manual, and it requires substantial paperwork. Improvements in operational efficiencies could increase patient satisfaction, reduce no-shows and accelerate check-ins.

Solution: A text and web-based solution, EasyCheck, integrated with AllScripts, enables digital check-in before clinic arrival.

Outcome: Deployed in 80 clinics, EasyCheck increased registration by 150% (400 to 500 a day) and reduced no-shows from 11% to 6% in 2022. Over 100,000 patients have digitally confirmed appointments, and over 25,000 have completed full digital check-ins.

Catalyst brings together clinical, operations, technology and finance professionals to brainstorm pioneering solutions to workplace pain points.





SympleNote Symptom Checker

Problem: Patients often need to repeat their symptoms multiple times while waiting on the phone for initial triage advice.

Solution: A digital communications solution, SympleNote, integrates into the electronic health record. The tool includes symptoms for over 840 medical and behavioral conditions. Using patient reported symptom information, it directs patients to the appropriate level of care and provides notes to the clinician, augmenting patient interactions.

Outcome: In 2022, the data collected showed that SympleNote enabled triage to a lower level of care in 51% of more than 6,400 encounters. Based on that success, in 2023, the Optum – WA system made the tool available to more than 350,000 MyChart users.

Data on file



Pharmacogenomics

Problem: A patient's genes directly impact how they respond to medication. Finding the right therapeutic can require a lengthy trial-and-error process, often including additional patient costs and possible bad outcomes.

Solution: Pharmacogenomics studies how a patient's genes affect their body's response to a medication. The program provides free genetic tests to identify possible drug-gene interactions and enhance pharmacists' drug recommendations. Optum Rx® pharmacists advocate for members or patients making recommended changes in the prescriptions to their doctors.

Outcome: The Guided Pharmacogenomics service has gone live and the first 1,378 members have been sent invitations to join this program.



Provider inbox

Problem: The volume of patient emails that clinicians get has doubled since the pandemic. Reading and responding can take up to two hours each day, contributing to clinician burnout and increased operational expenses. Local care delivery market analyses estimate a 50% reduction in inbox time could result in \$45 million in annual cost savings.

Solution: Provider Inbox, a local care delivery market-led communications tool built with enterprise-level clinical language, uses artificial intelligence and computer-assisted coding to answer patient emails. It can submit responses via the electronic medical record about lab results, prescription refills or registration forms.

Outcome: Developers trained the tool to answer emails based on input from over 3,000 messages. Active discussions for pilot opportunities are underway with Kelsey-Seybold, Atrius and Optum – OR.

Data on file

Behavioral health

Getting the right care at the right time

Access to behavioral health services is a nationwide crisis. More than 50% of patients in the United States struggle to get the care they need.¹ At Optum, we understand that behavioral health is critical to physical health.

Timely access can lead to better patient outcomes and lower health care costs. Together with our partners, we're creating behavioral health solutions that can improve care in single clinics as well as across systems. These efforts align with our commitment to the Quadruple Aim and value-based care.

A wide net for improved behavioral health

Over the past year, we expanded our network of behavioral health clinicians to 5,000 providers. We did this through several acquisitions. Through our holistic approach to care, we'll create a cohesive, comprehensive system for behavioral health that incorporates several treatment strategies, including:

- Self-directed care
- Behavioral health clinicians embedded with primary care
- In-person appointments
- Specialty behavioral care
- Virtual visits

A tailored approach to solutions

To meet patients' behavioral health needs, our Behavior Health Solutions team meets with leaders from each care delivery organization. Together they identify specific gaps in care and determine the best ways to address them.

We envision systems that support patients over a lifetime of care, following them across providers as their behavioral care needs change. This solution ensures our patients get the right behavioral care at the right time from the right clinician.

More than 50% of patients in the United States struggle to get the care they need.¹ At Optum, we understand that behavioral health is critical to physical health. Over the past year, we expanded our network of behavioral health clinicians to 5,000 providers.

1. [nami.org/mhstats](https://www.nami.org/mhstats); access to treatment is severely limited

A local approach

A shortage of behavioral health clinicians is the biggest problem at the local level. The Everett Clinic, part of Optum, in Washington State is one of our care delivery organizations which has invested in integrated behavioral health and new technologies to improve access to behavioral care. A robust, profitable department with over 80 behavioral health clinicians and staff support access to care and many valuable services, including:



The Collaborative Care Model

This evidence-based population health program creates access to behavioral health and psychiatry consultation in the primary care setting. Behavioral Health clinicians are embedded with primary care teams. They collaborate with primary care providers (PCPs) and psychiatrists in the shared electronic medical record to work together and provide direct behavioral care. Psychiatrists provide medication consultations to primary care clinicians. Patients and PCPs deeply appreciate this critical service to close vital gaps in care and address potential health concerns in real-time for the patients.



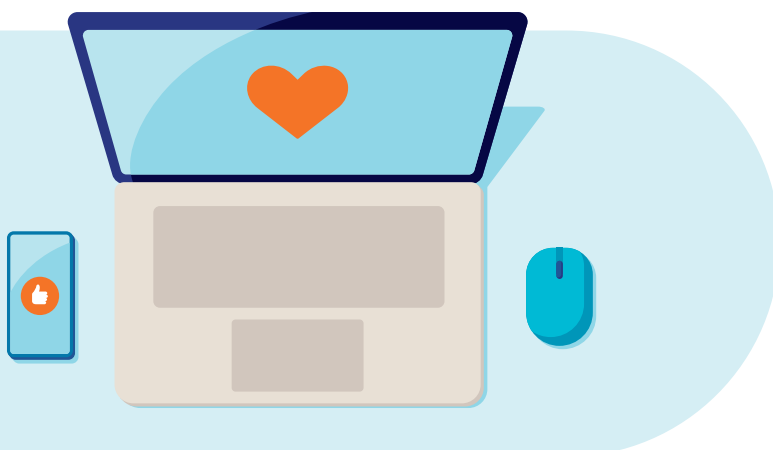
E-consult service

This program empowers primary care providers to directly send clinical questions or requests for medication management guidance to psychiatry clinicians through the shared electronic medical record. Psychiatry provides written consultation and medication recommendations to primary care within 24 hours. This timely service supports complex primary care patients, especially when access to psychiatry is limited.



E-visits

This solution creates a convenient, digital front door to behavioral health services for patients with mild-to-moderate depression and anxiety. Patients can access care through a separate virtual visit without going through their primary care clinician. Patients use their smartphone or computer to complete a digital symptom assessment. This matches them to a virtual behavioral health service or a psychiatric medication that includes a primary care follow-up. They are then matched to either virtual behavioral health or psychiatry services.



Clinical consistency

Greater integration supports a culture of quality and safety

In clinical care, consistent application of evidence-based medical practice improves patient health outcomes. Providers rely on best practices rooted in high-quality information to standardize their workflow and care plans. Organizational integration makes that possible.

All providers need access to the same data and evidence translated into clinical recommendations to implement consistent clinical practices. Our clinical consistency resource team works toward this goal. The team creates the best practices to impact our quality, safety, regulatory and educational activities.

Pursuit of dependability

Together, the team will address and eliminate inconsistencies in care. Ultimately, it will transform Optum Health into an integrated, highly reliable organization that leads the nation in unparalleled care. High reliability relates to high-quality care. A highly reliable health care organization never misses an opportunity to promote healthy behaviors and improve the health of its patients.

The team pursues clinical consistency in multiple ways, including:

- Data and analytics inform high-value care
- Experts develop the best processes and infrastructure
- Specialists leverage modern technologies, such as artificial intelligence and machine learning

Repository of truth

In 2022, we created a central library of educational content called a “repository of truth.” This is where anyone within the organization can access clinical materials.

The library is a work in progress. But once completed, it will form the foundation of a more integrated infrastructure and will contribute to our future centralization efforts.

Specialist reviews of evidence-based medical content

Groups of providers review the medical literature to compile high-quality clinical medical resources (e.g., clinical trials and reviews of medical evidence) to fill this repository. Our providers can then use this information to drive their clinical care.

- **Clinical insights:** This team of pharmacists focuses on identifying and recommending medication best practices. They review existing peer-reviewed literature, distill the evidence and suggest high-value care standards for specific medicines.
- **Content creation:** This group answers the common clinical questions that drive high-value care. They compile evidence to inform provider workflows. They have created 63 algorithms for best practices, including low back pain and cardiac stress testing protocols.



This team creates the best practices to impact our quality, safety, regulatory and educational activities.



Optum Center for Research and Innovation Clinical Scholars Awards program

The Optum Center for Research and Innovation (OCRI) believes clinicians have the power to change health care for the better. And the spark of an idea can fuel meaningful advancements in care delivery.

In 2023, OCRI relaunched the Clinical Scholars Awards program to support innovation in health care. Formerly part of Optum Labs, this competitive grant program provides pilot support for clinicians pursuing passion projects that benefit patients in their clinics and beyond.

Previous awardees of the OCRI Clinical Scholars Awards program have focused their attention on:

- Preventing unnecessary and aggressive treatments through breast cancer risk stratification
- Reducing behavioral problems in vulnerable children by delivering trauma-informed training to caregivers
- Reducing emergency department visits by remotely monitoring patients with atrial fibrillation
- Speeding care and treatment for cancer through telehealth diagnostics

The 2023 OCRI Clinical Scholars Awards program has awarded \$300,000 across four clinician teams. In addition, these awardees will receive mentorship, research training and data science support as they work to ignite change and create a more holistic approach to health care.

OCRI Clinical Scholars Awards program focus their attention on:



Preventing unnecessary and aggressive treatments through breast cancer risk stratification



Reducing behavioral problems in vulnerable children by delivering trauma-informed training to caregivers



Reducing emergency department visits by remotely monitoring patients with atrial fibrillation



Speeding care and treatment for cancer through telehealth diagnostics



Meet our 2023 Clinical Scholars



Aninda Das



Attaining the Quadruple Aim in Accountable Care Organizations through integration of clinical pharmacists in primary care teams for chronic disease management

Primary care is the mainstay for achieving high-quality, accessible and efficient health care. The demands of chronic disease management on primary care physicians (PCPs) in care teams within integrated health systems has made primary care transformation essential to achieving the Quadruple Aim of improving quality of care, decreasing health care costs, and improving patient and provider experiences.

According to CDC statistics from 2018, more than half (i.e., 52%) of the non-institutionalized, adult civilian population in the U.S. has at least 1 out of 10 leading chronic diseases. The total annual expenditure for chronic disease management is \$1.1 trillion. Of all specialties, the physician burnout rate is the highest among family practice physicians with 51% reporting burnout in 2022. The annual estimated cost of physician burnout is \$4.6 billion.

In the U.S., 73.9% of primary care visits involve prescribing of medications. Our study examines if integration of clinical pharmacists in primary care teams for medication optimization through Comprehensive Medication Management (CMM) in chronic disease management will improve the work-life balance of PCPs (i.e., the fourth aim of the Quadruple Aim), besides improving patient experience, lowering health care costs and improving patient outcomes (i.e., the other three aims of the Quadruple Aim).

Source: cdc.gov/pcd/issues/2020/20_0130.htm#



Joshua Jacobs



Enhancing cardiac care for those with angina (Enhancing CCTA)

Based on evidence-based guidelines, this quality improvement project aims to implement and spread the appropriate workup of adult patients with stable chest pain (angina pectoris). Today, far too many of these patients undergo unnecessary low-value steps, including some procedures and referrals. This exposes patients to needless costs, risk of complications and a potential cascade of harmful care. The optimal path to determine best management is known, just not uniformly utilized.

Through this project, the appropriate use of Coronary Computed Tomography Angiography (CCTA) will be enhanced, and resultant effects will be quantified. These include avoidance of unnecessary procedures like cardiac catheterization, associated reduction in wasteful medical expense, as well as important patient safety and implementation considerations to ensure appropriate clinical workflows. Successful implementation will contribute to better health care outcomes and serve as a model for similar initiatives in the future.

Meet our 2023 Clinical Scholars (cont'd)



Christin Isik



Amanda Niemann



Digital application-assisted fall prevention program for at-risk older adults in rural communities

Falls pose a significant threat to the well-being of the older adult population, particularly to those residing in rural areas where barriers to care often exist. Digital applications have the potential to reduce fall risk, but there is a need to identify digital applications which effectively engage the older adult population. This study will explore if at-risk, older adult health plan members residing in rural areas successfully engage in a fall prevention program that consists of a digital application exercise program combined with personalized telephonic support. The study will also evaluate if participation in this fall prevention program positively impacts fall-related health outcomes and medical utilization.

Study participants will receive the digital exercise application preloaded on a tablet. Over 12 weeks, participants will use the application to complete evidence-based exercises three to four times per week and will receive four to five telephonic outreaches from a non-clinical Better Balance Advocate (BBA) who will provide additional support. Data will be collected from the tablets, BBAs and claims to assess engagement in the digital application and outcomes such as less falls, improved quality of life and reduced medical utilization.



Todd Sobol



Impact of point-of-care laboratory testing in skilled nursing facilities (SNF) on patient outcomes, emergency room utilization and unnecessary hospitalization

Implementation of the Optum Model of Care (MOC) relies on early identification of a member's change in condition. Ongoing clinical management requires the ability to obtain laboratory testing and receive results in a timely manner. The current environment in skilled nursing facilities does not have adequate laboratory testing available and has inconsistent STAT testing and significant issues reporting results.

This project will evaluate the extent of the problem related to obtaining timely laboratory studies. i-STAT is a hand-held blood analyzer that delivers diagnostic results within two minutes. The technology allows for point-of-care testing, requiring only two to three drops of blood through a simple fingerstick. This study will also analyze the impact on patient outcomes by increasing accuracy of diagnosis, reducing the need for emergency room evaluations and subsequent unnecessary hospitalizations.

Optum Partnership Program

Reimagining health care together

Partnering with other providers is fundamental to delivering high-quality patient care. Through our Optum Partnership Program, we bring together physicians and advanced practice clinicians (APCs) from across the country to share their best practices for improving patient outcomes.

The program launched in 2017, and we opened it for advanced practice clinicians for the first time in 2022. This initiative operates in 25 markets and continues to expand as participation grows. As a reward and recognition program, it highlights providers' contributions to patient and provider experience through workshops, committees and national associations. We also strive to hold the Optum Partnership Forum (OPF) annually to celebrate our physicians and APCs.

Pursuit of dependability

Physicians and advanced practice providers selected for the program participate in learning modules that enhance their practice and abilities to deliver quality care. The program also offers networking and career development opportunities, including preferential admission to our Grove Leadership Essentials, Climb Professional Excellence and Sequoia Fellowship programs.

Based on their activities, stewardship and impact on care delivery, providers can progress in the program from Associate Partner to Partner to Distinguished Partner.

Key metrics (as of September 2023)

- **4,097** eligible physicians
- **2,393** participating physicians
- **58%** participation rate of total eligible physicians
- **1,976** eligible advanced practice clinicians
- **958** participating advanced practice clinicians
- **48%** participation rate of total eligible advanced practice clinicians
- **4.58/5** program favorability



Approximately 5,000 hygiene kits were assembled for One World Surgery mission trips in support of social responsibility efforts.



Optum Partnership Forum

The Optum Partnership Forum (OPF) is our crown jewel event. In 2023, 1,200 Partner and Distinguished Partner level physicians and advanced practice clinicians participating in the program attended the 6th annual forum in Atlanta.

Over two days, attendees heard from industry leaders, including keynote speaker Duncan Wardle, former head of innovation and creativity at The Walt Disney Company. They participated in 22 breakout sessions covering topics including routes to partnership, addressing burnout and maximizing financial fitness.

We also presented five leader-nominated awards to providers who embody each of the UnitedHealth Group values: integrity, compassion, relationships, performance and innovation. In addition, we also bestowed a leadership award. This year, we honored:

Integrity

Christina Sternesky
Legacy Riverside Medical Group

Performance

Dr. Nishiena Gandhi
Optum – New Mexico

Compassion

Dr. Sandra Liliana Oakes
WellMed

Innovation

Dr. Yuan-Po Tu
The Everett Clinic

Relationships

Dr. Paula Hall
American Health Network

Leadership

Dr. Peter Casterella
The Polyclinic







About Optum Health

Optum Health is transforming health care. We're building a comprehensive and connected health care engagement and delivery platform. This is to improve care quality, outcomes and the patient and clinician experience, while reducing the total cost of health care. It comprises three distinct platforms: Care Delivery, Care Solutions and Health Services, including digital and telemedicine. Optum Health solutions span the entire care continuum and include consumer engagement and well-being programs, value-oriented patient care, chronic condition management solutions, behavioral services, post acute care and health care financial services.

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