DEPARTMENT OF **RESEARCH & EVALUATION**

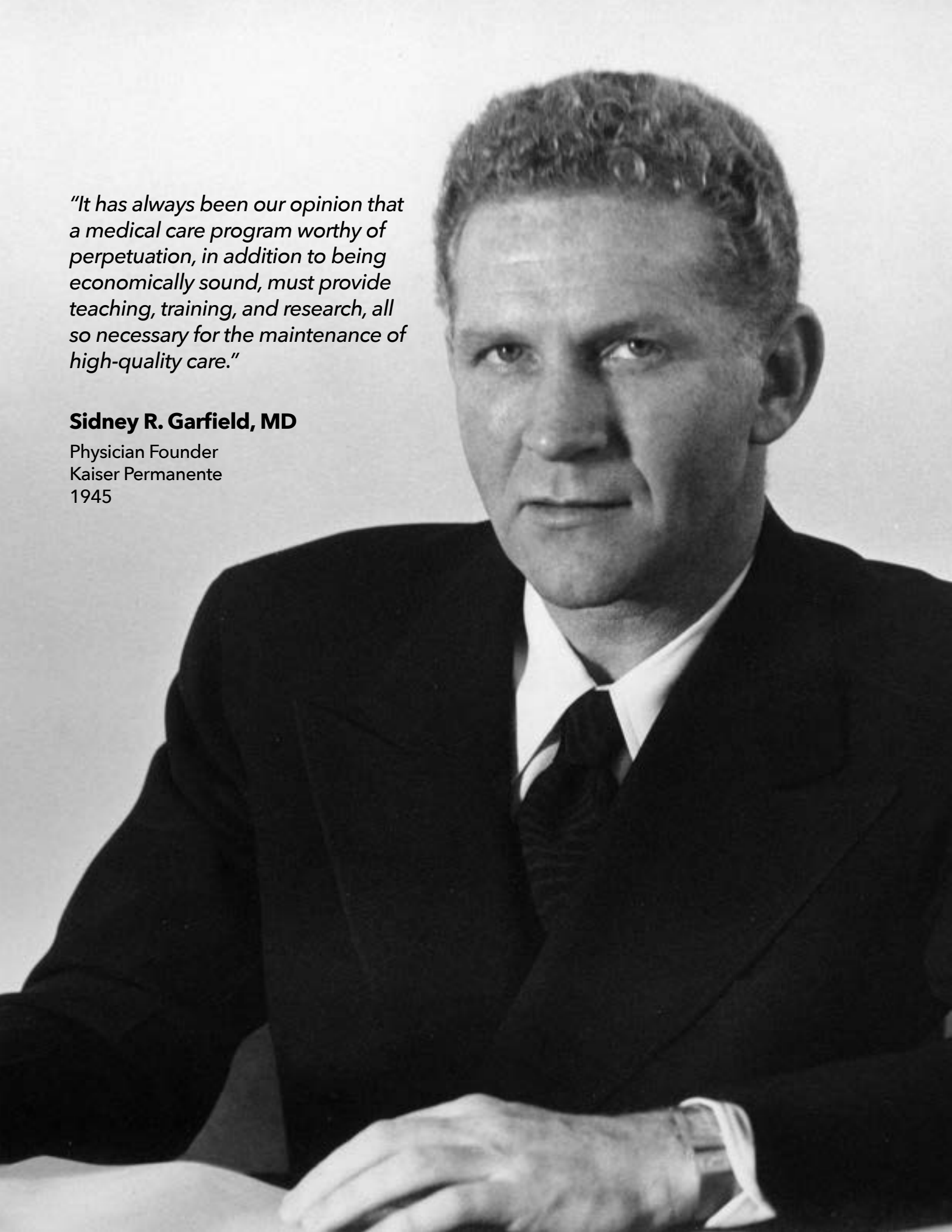
2023 Annual Report

Kaiser Permanente
Research

60 YEARS TRANSFORMING CARE

KAISER PERMANENTE®

Contents



"It has always been our opinion that a medical care program worthy of perpetuation, in addition to being economically sound, must provide teaching, training, and research, all so necessary for the maintenance of high-quality care."

Sidney R. Garfield, MD

Physician Founder
Kaiser Permanente
1945

Message from the Senior Director

In 2023, we celebrated the 60th anniversary of the Kaiser Permanente Southern California research program. A common thread connects our past to our present. Our research program was born from a desire to transform care. That vision continues to inspire our researchers today.

Much has changed, to be sure. The early pioneers who culled data from patient charts on their kitchen tables would likely be awestruck by the power of the tools our researchers have access to today, from our vast electronic health record to natural language processing and machine learning. But the source of many of the questions that drive our research remains the same: real-world clinical challenges.

The first section of this year's report focuses on the history of our research program, outlining how what began as a "one-man research committee" grew into a robust research program with global influence. Scientists and clinician researchers from our region have led landmark studies and produced findings that changed clinical practice and shaped health policy. The vignettes and visual timeline highlight a small selection of those studies.

The rest of the report focuses on 2023. Our present-day research program supported more than 500 studies and 350 clinical trials. Authors from KPSC published more than 650 journal articles, a tie with the historic record set in 2022.

As we reflect on our history, one recent accomplishment that stands out for me is the establishment of the Division of Clinician Research. Although it is our newest division, it has the deepest historical roots. The division is home to the Regional Research Committee, which was founded in 1954. I believe the division will help us more fully tap the potential of clinician-led research as we continue to identify opportunities to use research to transform care.

In 2023, we embarked on a search for a new executive scientific director to lead the program into the future. Among the key qualities we are looking for is a deep commitment to building a research program that transforms care. That commitment is our program's legacy. It is also our future.

It has been my privilege to serve as the interim senior scientific director since 2021. In that time, I've had the opportunity to work more closely with our research teams and to foster a stronger connection between our researchers and our clinical leaders. Though it may be in a different capacity once a new director is selected, I look forward to continuing to work with this talented and dedicated group for years to come.

Be well,

Benjamin Broder, MD, PhD

Interim Senior Director of Research

60 SIXTY YEARS TRANSFORMING CARE

RESEARCH & EVALUATION

In 1975, David Sacks, MD, began practicing at Kaiser Permanente in Bellflower, where he specialized in high-risk pregnancies. A few years later, he came across a patient who had a strange blood disorder. There was concern that she and her baby could die.

He did everything he could, and his patient survived. He wrote up the case for the *American Journal of Obstetrics and Gynecology.* It was his first taste of research, and he couldn't wait to get more.

Kaiser Permanente Southern California's legacy of research aimed at improving health and health care began in the early 1950s. In the beginning, it was physicians like Dr. Sacks – the longest-serving Southern California Permanente Medical Group physician working on research today – who used what they were seeing in the clinic to power research for the broader world.

Now celebrating its 60th anniversary, the program conducts research used as evidence for national and international policymaking as well as many improvements to patient care.

"One of the things I learned early on was that the best research comes from trying to find the answer to some very simple questions," Dr. Sacks said. "And we can rely on working with our patients to bring us those questions."

Dr. David Sacks

"One of the things I learned early on was that the best research comes from trying to find the answer to some very simple questions."

– David Sacks, MD

60 SIXTY YEARS TRANSFORMING CARE
RESEARCH & EVALUATION

1950s-60s

Research a "labor of love" for physicians in early days of SCPMG Partnership

13 physicians signed the first Partnership Agreement to form SCPMG in 1953.

The earliest days

The origins of our research program can be traced back to the 1950s, when 13 physicians signed the first Partnership Agreement to form SCPMG in 1953.

The next year, SCPMG Executive Medical Director Raymond Kay, MD, brought the growing number of research efforts under a central umbrella by creating the Research Committee (now the Regional Research Committee). He appointed as chairperson Jack Cooper, MD, an early expert in detecting prostate cancer.

RRC EST 1954
REGIONAL **RESEARCH** COMMITTEE

"For the next few years, Dr. Cooper would be a one-man research committee and Institutional Review Board, years before we had an official IRB. He approved all research projects and delegated funds," recalled Samuel O. Sapin, MD, SCPMG's first pediatric cardiologist and one of a small handful of physicians who received funds for research projects in those early years.

The Research Committee's budget grew from an initial $10,000 in 1954 to $54,648 in 1959 (equal to $559,271 in 2023).

1963

Kaiser Permanente Southern California's first research department is established.

Research finds an official home

In 1963, KPSC's first research department – then called the Department of Education and Research – was established. Its primary function was to track and manage the research budget. By 1969, the budget had increased to $230,000, the equivalent of $1.9 million in 2023. Those funds supported physician-led research focused on topics that arose from clinical practice.

"We often refer to the 1960s as the days of giants because these individuals stood tall from the norm, and they represented people who went against the grain and did not follow the path of least resistance. For the physicians of this era, research was truly a labor of love," said authors John J. Sim, MD; Kristen Ironside, MA; and Gary Chien, MD; in a 2019 article published in *The Permanente Journal*.

One of the physicians engaged in research at the time was Irving Rasgon, MD, a physician at the Kaiser Permanente Los Angeles Medical Center. Much of his research focused on the importance of screening to detect colorectal cancer.

His son, Scott Rasgon, MD, who also became an SCPMG physician and researcher, recalls that his father and his colleagues were motivated by their own curiosity and often worked on research on their own time.

"Physicians said to themselves, 'This is interesting. I'll do a study,'" he said. "Statistics weren't that sophisticated … My dad pulled his data from paper charts, often working at home. This was in the days before HIPAA. It was very informal."

Dr. Irving Rasgon

One of the physicians engaged in research at the time was Irving Rasgon, MD, a physician at the Kaiser Permanente Los Angeles Medical Center.

1965

Martin Reisman, MD, a pediatric cardiologist at the Los Angeles Medical Center publishes "Atherosclerosis and Pediatrics" in *The Journal of Pediatrics*.

1969

Irving Rasgon, MD, publishes early research on the importance of screening to detect colorectal cancer.

1970s-80s

Research evolves into more formal program across Southern California

Dr. Samuel Sapin

"The medical center's research committee was the first stop for a physician wanting to do research."

– Samuel O. Sapin, MD

Dr. Sapin tapped as first physician director of Education and Research

In the early 1970s, the medical group decided that the Department of Education and Research needed a physician leader.

When Dr. Sapin heard about the potential opportunity, he wrote to the executive medical director to throw his hat into the ring. He got the job, becoming the first regional director of the Department of Education and Research in 1972.

To formalize the process of reviewing and approving research projects, he established research committees at each of the 5 KPSC medical centers at that time: Fontana, Los Angeles, Panorama City, Harbor City, and Bellflower.

"The medical center's research committee was the first stop for a physician wanting to do research," said Dr. Sapin.* "The chairs of all the research committees would meet and discuss each project."

To encourage physicians to conduct research and publish studies, the department's newsletters regularly featured published studies around the region. The research spanned many areas, including cancer, cardiovascular disease, child and adolescent health, gastroenterology, maternal-child health, and medication safety and effectiveness.

One of the studies featured included a 1977 study led by Dr. Cooper called "Detection of Prostatic Cancer by Solid-Phase Radioiummunoassay of Serum Prostatic Acid Phosphatase," which was published in the *New England Journal of Medicine*.

**Dr. Sapin shared his recollections on the early days of research during a series of interviews with writer Teri Allen between 2002 and 2014. Much of what we know about R&E's history in the 1960s and 70s comes from those interviews and other materials he shared with Teri. Dr. Sapin died in 2021.*

1972

Samuel O. Sapin, MD, is appointed regional director of Department of Education and Research.

"This new test has been hailed as a potential major breakthrough in the early detection of prostatic cancer," reported Dr. Sapin in the Research and Education Annual Newsletter. "Dr. Cooper is the founder of our research program. His latest contribution is only one of the many Jack has made to medicine, all also helping to develop our reputation as a dynamic and progressive medical group."

Physicians continue research out of pure passion

In the late 1970s most physicians still worked in their off hours to scientifically assess the best protocols for healing their patients.

Robert S. Zeiger, MD, PhD, who joined SCPMG in 1976, recalls that, "as a physician, you were really on your own." Physicians couldn't obtain grants and get paid for the work at the time. Dr. Sacks recalls fighting to be able to use the one-half day a week of Education Time for research. But that time wasn't enough to do any complex research.

Still, they found a way.

Dr. Zeiger said, "You did research out of the goodness of your heart, working nights and weekends."

Dr. Zeiger and his colleague Michael Schatz, MD, an allergist in San Diego, began collaborating in 1977. At the time, the research department had few personnel and little grant administration experience. So, their first National Institutes of Health–funded projects, "Prevention of Allergic Disease in Childhood" and "Asthma in Pregnancy," had to be administered by UC San Diego, where both were clinical professors.

The study funded by Dr. Zeiger's first KPSC grant showed that a referral to an asthma specialist reduced emergency room visits for asthma relapses. From these beginnings, Dr. Zeiger and Dr. Schatz conducted many clinical trials on asthma funded by the NIH and participated as principal investigators and co-principal investigators for NIH asthma networks, including the Childhood Asthma

Dr. Robert Zeiger

"As a physician, you were really on your own... you did research out of the goodness of your heart, working nights and weekends."

– Robert Zeiger, MD, PhD

1975

Kaiser Permanente Southern California researchers publish a landmark study establishing the link between estrogens and endometrial cancer.

1977

Prostatic cancer study led by Jack Cooper, MD, is published in the *New England Journal of Medicine*.

continued

The establishment of the KPSC IRB marked the beginning of a new era. To protect patient rights and privacy, applications could come only from researchers within the organization, such as physicians, nurses, pharmacists, and scientists.

Management Program and the Childhood Asthma Research and Education Network.

The results from these studies and clinical trials led to treatments that have improved allergy and asthma care across the globe.

IRB established to protect patients

In 1979, the KPSC Institutional Review Board was formed in response to new federal regulations.

An Education and Research newsletter at the time stressed the importance of protecting the people who participate in research studies. "First consideration is the patient. The human research subject is considered a person first, a patient second, and as part of a study only if informed consent and other appropriate safeguards are met," read the newsletter article. "Our organization's Human Rights Committee (Institutional Review Board), which has federal approval and is mandated by both federal and state law, meets with the Regional Research Committee and looks at all research proposals from this perspective."

The establishment of the KPSC IRB marked the beginning of a new era. To protect patient rights and privacy, applications could come only from researchers within the organization, such as physicians, nurses, pharmacists, and scientists. An application from a researcher outside of the organization could be considered but not approved without "sincere internal interest for an active liaison as well as publication authorship agreements."

Eric Macy, MD, the current chair of the KPSC and Hawaii IRB, has served on the KPSC IRB since 1992 and been the KPSC IRB chair since 1999. He said that KPSC

1979

Kaiser Permanente Southern California's first Institutional Review Board is formed.

initially decided that not only the required federally funded research would be subjected to a higher level of scrutiny but that all research coming out of KPSC would have the same level of review, independent of the funding source.

"We've always had a very independent IRB in Southern California that takes its protection of individuals very seriously," Dr. Macy said. "Our goal at Kaiser Permanente is not primarily research, but patient care. Research is important for our members, but our livelihood is not dependent on it, so we are careful not to put the rest of our organization at risk."

In 1983, 5 units fell under research: Clinical Research, Epidemiologic Research, Regional Research Laboratory, Medical Technologies/Practice Evaluation, and Health Services Research.

Structural changes continue

In the early 1980s, the research program moved under the umbrella of the newly created Department of Clinical Services. Dr. Sapin was tapped as its associate medical director.

In 1983, he appointed Sheldon Wolf, MD, as the regional coordinator of research. At the time, 5 units fell under research: Clinical Research, Epidemiologic Research, Regional Research Laboratory, Medical Technologies/Practice Evaluation, and Health Services Research.

At the time, there were 2 dozen internally funded research projects each year, each taking an average of 1 to 2 years to complete. The intent of the internally funded projects, Dr. Sapin said, was to "pilot test promising research studies, which then may be funded by external agencies for more in-depth research."

In 1988, the research program moved into its own department – the Department of Research & Evaluation – to expand the research portfolio and increase access to external funding.

1982

The Department of Clinical Services is established.

1988

Research program moves into its own department: the Department of Research & Evaluation.

1990s

Research & Evaluation takes root with aspirations of growth

New leader tapped to lead and grow department

Diana Petitti, MD, MPH, was appointed as director in 1993. Before joining R&E, Dr. Petitti worked with the Division of Research at Kaiser Permanente Northern California and as an epidemic intelligence service officer with the Centers for Disease Control and Prevention.

The hire underscored SCPMG's desire to expand the research program. Despite its long history, it remained significantly smaller than research programs in other regions.

"In the past, SCPMG has been less active in research than the Northwest and Northern California regions," noted the announcement of Dr. Petitti's appointment in *Partners News*. "Our goal is to develop the Southern California regional research department as a center of excellence for clinical and evaluative research in medical outcomes."

Janis Yao, MS, a data reporting and analytics consultant who joined R&E around the time Dr. Petitti was hired, recalls that the department's primary focus was to support the research projects of SCPMG physicians.

Yao, who had been working as a biostatistician, said she was seeking adventure when she applied to join the department. "I believed it would provide me a platform to grow," she said.

The 1995 R&E Annual Report featured a study that Yao co-authored. Dr. David Sacks was the lead author. The paper, published in the *American Journal of Obstetrics and Gynecology*, examined glucose tolerance testing in pregnancy. The paper has since been cited 292 times and helped to pave the way for new criteria defining gestational diabetes.

1991

The Vaccine Safety Datalink partnership is established.

This influential study, along with others, helped to raise the profile of the research program.

The team began collaborating on projects funded by various industry sponsors and government organizations and expanded the scope and diversity of its research.

KPSC researchers became involved with several important research networks in the 1990s, including the Vaccine Safety Datalink and the Cancer Research Network.

Clinical trials began to be incorporated into practice

Clinical trials also were ramping up during the 1990s, especially in San Diego. Jonathan A. Polikoff, MD, recalls transferring from Orange County after 5 years to San Diego in 1988 to be part of the action.

While he was in Orange County, Dr. Polikoff incorporated some of the trials being performed at UC Irvine to Kaiser Permanente with the help of a UC Irvine fellow, but not many other physicians there were following the same path. However, at the same time, Scott Browning, MD, a physician in San Diego, was incorporating clinical trials from UC San Diego into Kaiser Permanente practice. Others in San Diego were also actively pursuing clinical trials, although finding funding and support was a challenge.

"Scott didn't have a fellow like I did, but he got some funding for a clinical position through the UCSD research program," said Dr. Polikoff. "Then, he wrote a grant in the early 1990s to become a CCOP, which is a community cancer oncology program. It was sponsored directly by the National Cancer Institute because they were trying to get community programs more involved in clinical research."

"In 1993, the San Diego Medical Center began getting direct funding from the National Cancer Institute rather than through academic centers. That's when things started to really take off. It was just San Diego at the time," Dr. Polikoff added.

Dr. Jonathan Polikoff

1993

Diana Petitti, MD, MPH, is hired as director of Research & Evaluation.

1993

San Diego Medical Center begins receiving funding from National Cancer Institute as a Community Cancer Oncology Program.

1990s

continued

"The original ACEs study was highly significant because it brought widespread attention to the impact that adverse childhood experiences have on lifelong health."

– Sonya Negriff, PhD

Among the early breast cancer clinical trials was a study that tested the breast cancer prevention drug tamoxifen versus a placebo, which the San Diego site participated in. "This was a truly groundbreaking study, but tamoxifen had some worrisome side effects," Dr. Polikoff said.

At the same time, several multisite trials about cardiovascular disease also were going on, recalls Vicken J. Aharonian, MD, who began working at Kaiser Permanente in 1979. One study in 1995 examined the idea at the time that coronary disease was something that got worse and worse until someone died.

"We were trying to determine if treating the cholesterol would decrease coronary artery disease," Dr. Aharonian said. "We found a lot of the patients did not progress and they basically lived with the disease. There are things that we can do to manage the situation and, in some cases, there was some regression too."

The study "was an eye-opener" and changed the way physicians thought about coronary heart disease, he added.

Dr. Vincent Felitti

The landmark ACEs study

A collaboration between Vincent Felitti, MD, an SCPMG preventive medicine physician in San Diego, and Robert Anda, MD, of the CDC, resulted in a landmark study about Adverse Childhood Experiences.

The first study, published in *The American Journal of Preventive Medicine* in 1998, examined the relationship between exposure to abuse, neglect, and household dysfunction during childhood and disease and behaviors in adulthood. They found a strong correlation between exposure to childhood adversity and multiple physical and mental health conditions later in life.

The study led to more studies over the next several decades, including several current studies at R&E.

"The original ACEs study was highly significant because it brought widespread attention to the impact that adverse childhood experiences have on lifelong health," said Sonya Negriff, PhD, a research scientist in the Division of Behavioral Research. "The study has been replicated many times and now researchers including myself are working to understand the mechanisms of those associations and how we can work to prevent the negative outcomes."

This new practical application of ACEs research continues the work Dr. Felitti pioneered, aimed at giving kids a better chance to grow up into mentally healthier adults."

1998

The original CDC-KPSC Adverse Childhood Experiences study is published.

2000s

Researchers tap into robust data systems to transform care


Dr. Craig Cheetham

FDA/Kaiser Permanente study highlights safety issues with arthritis drug

In 2001, David Graham, MD, MPH, from the Food and Drug Administration approached Kaiser Permanente about conducting a study that looked at safety of Vioxx, a COX-2 inhibitor used to manage pain and inflammation for conditions like arthritis.

The first COX-2 inhibitors were approved by the FDA in 1998 and 1999. They held appeal because they caused fewer gastrointestinal problems than other NSAIDs (nonsteroidal anti-inflammatory drugs). But in a pivotal trial by the manufacturer of Vioxx, concerns were raised about a possible link between Vioxx and heart attacks.

"Kaiser Permanente had taken a cautious approach to these drugs," said Craig Cheetham, PharmD, who was tapped as the lead investigator for KPSC. "We and the SCPMG rheumatologists were already interested in looking at the potential health risks of Vioxx when the FDA approached us."

The researchers undertook a drug safety study, tapping into records for 1.4 million Kaiser Permanente members in Northern and Southern California who took anti-inflammatory medications, including ibuprofen, naproxen, Celebrex (a competing COX-2 inhibitor), and Vioxx. This study pre-dated the rollout of Kaiser Permanente HealthConnect® by several years, so the researchers primarily relied on a large data system called POINT.

"POINT wasn't an electronic medical record, but it drew from about 400 different Kaiser Permanente computer systems to collect all available data on our patients," said Dr. Cheetham, who worked in the Pharmacy Analytics Services Department at the time. "Back then, there weren't a lot of health systems across the country that had linked these types of data that were used in the study."

2000

Kaiser Permanente Southern California joins the HAPO study.

2000

Cancer Clinical Trials Access Program is established with regional support.

2000s

continued

"It is unusual for a drug to be pulled from the market so quickly. Our paper was published months later and after FDA and Congressional hearings."

– Craig Cheetham, PharmD

Preliminary findings drew significant attention from the media

In August 2004, the preliminary findings from the study were presented at a conference in France. The abstract and poster attracted an unusual amount of attention from the media.

The lead FDA scientist, Dr. Graham, told a congressional panel in November 2004 that the study found "that Vioxx increased the risk of heart attack and sudden death by 3.7-fold for high-dose and 1.5-fold for low-dose, compared to Celebrex." With the widespread use of Vioxx he also emphasized that the death toll was equivalent to plane crashes at the rate of "2–4 aircraft every week, week in and week out, for the past 5 years."

By the time Dr. Graham gave that testimony, the drug manufacturer had already withdrawn Vioxx from the market. The attention the FDA/Kaiser Permanente study received led the drug manufacturer to conduct an interim analysis on an ongoing clinical trial which also found elevated risk of heart attacks with the high dose.

The study was published in *The Lancet* in January 2005.

"It is unusual for a drug to be pulled from the market so quickly," said Dr. Cheetham. "Our paper was published months later and after FDA and Congressional hearings."

One of the benefits of the experience was that it helped raise awareness of the contributions the Kaiser Permanente pharmacy researchers could make to Kaiser Permanente research.

"I got more involved with R&E and also the Division of Research up in Northern California," he said. "The Vioxx experience opened a lot of doors."

Total Joint Registry aimed for quality improvement

In 2001, KPSC research took another leap forward with the founding of the Total Joint Registry in San Diego. Clinical quality registries are intended to enhance quality, safety, and cost reduction using real-world data for a self-improving health system.

2003

Kaiser Permanente joins the SEARCH for Diabetes in Youth study.

"We developed the Total Joint Registry in response to changing our national contracts for implants," recalls Liz Paxton, PhD, MA, senior director of the data reporting, analytics, medical device surveillance, assessment unit of Clinical Analysis. "The physicians were concerned that if they switched implants, there could be some potential harm to patients."

She said they saw the Total Joint Registry as an opportunity to develop a quality improvement mechanism in joint replacement where they could identify patient characteristics, surgical techniques, and outcomes primarily focused on revision, surgery, infections, complications, readmissions, emergency department visits, and deaths.

"We modeled the Total Joint Registry as a pilot study in San Diego after the Swedish hip registry," Dr. Paxton said. "The Swedish registry had found they were able to change and improve outcomes on a national basis by providing feedback to physicians. We wanted to replicate that."

Early successes led to expansion. In 2002 the program extended to all Southern California, and other regions were brought on the next year. The registry expanded to ACL, spine, shoulder, hip fracture, then cardiac and vascular devices and other specialties and implants.

Registry supports robust research, improved patient safety

Their first study, "Obesity and Perioperative Morbidity in Total Hip and Total Knee Arthroplasty Patients," was published in 2005 in the *Journal of Arthroplasty*, identifying risk factors for revision surgery.

The registry has had a significant impact on patient safety by identifying orthopedic clinical best practices and disseminating this information to enhance quality of care. The registry model was adapted to other medical devices as well.

"For example, in 2015 there was a vascular device that our physicians were concerned about, and we evaluated it and found a higher-than-expected adverse event rate, Dr. Paxton said. "We notified the FDA, and our physicians agreed the internal evidence was strong enough that they stopped using it in 2016."

Dr. Tadashi Funahashi, Liz Paxton, Dr. Robert Namba

"We developed the Total Joint Registry in response to changing our national contracts for implants. The physicians were concerned that if they switched implants, there could be some potential harm to patients."

— Liz Paxton, PhD, MA

2004

Preliminary findings from the Vioxx study are presented at a conference in France.

2004

Michael Kanter, MD, becomes regional medical director of Quality and Clinical Analysis for SCPMG.

2000s

continued

Dr. Reina Haque

Leadership truly wanted to know our opinions about certain clinical dilemmas and programs. We had access to leadership and often talked about how our projects could help clinical practice. "

– Reina Haque, PhD, MPH

Later that same year, the FDA distributed the first safety advisory on the device. The team's research was published in the *Journal of Vascular Surgery* in 2021 and 2022.

Dr. Paxton said the implant registries' success can be attributed to the overwhelming 95% participation by physicians, the support of regional and interregional chiefs' groups, and the fact that patients stay with Kaiser Permanente for many years. Over 20 years, they've lost only 8% of membership in their registries.

Now, they are tracking about 4 million devices for over 800,000 patients. By 2024, they had published 290 articles in peer-reviewed journals.

A recently published paper that looked at the first 20 years of the implant registries concluded, "The use of implant registries within our health system, along with clinical leadership and organizational commitment to a learning health system, was associated with improved quality and safety outcomes and reduced costs."

R&E focuses on expanding scientific ranks

Meanwhile, R&E focused on recruiting scientists. In 1999, there were 7 investigators in R&E. By 2002, that number had increased to 11.

One of those recruits was Reina Haque, PhD, MPH, who came to R&E from UC Berkeley.

Dr. Haque's focus at UC Berkeley was on international research projects. However, Kaiser Permanente was in her blood. Her great uncle had worked for Henry J. Kaiser as an engineer, and she had been a Kaiser Permanente member since birth. Also, she had family in Pasadena and thought it would be a good place to raise her own.

"The big draw, though, was establishing an independent career," Dr. Haque said, "Having support, but working on projects I wanted to work on. Leadership truly wanted to know our opinions about certain clinical dilemmas and programs. We had access to leadership and often talked about how our projects could help clinical practice. We also had opportunities to partner with clinicians."

She said that at the time, Dr. Petitti's vision was for the scientists to be a small group with specialized research areas: cancer, clinical epidemiology, diabetes, behavioral outcomes, women's health and reproductive health, and health services research.

2004

HIV/AIDS Research Trials becomes a formal program.

"We have become so much broader in terms of research subject matter and expertise," Dr. Haque said. "Also, over time, the things we used to have to do on our own as scientists, like grant applications, we now have teams of people here to help us."

Researchers join groundbreaking national projects

Despite having a small staff in the early 2000s, the department joined in on several influential multicenter projects. One of those was SEARCH for Diabetes in Youth, a national study aimed at understanding more about diabetes among children and young adults. Dr. Haque said that study "helped put R&E on the map."

Another influential multicenter project, the Hyperglycemia and Adverse Pregnancy Outcomes study began enrolling in 2000. This one focused on gestational diabetes.

"When the HAPO study came along, I was the clinician on the project and part of the organizing committee," Dr. David Sacks said. "We met in Chicago and hammered out details. Kaiser Permanente in Bellflower was one of the 5 centers in North America."

The ongoing study eventually found a strong association between maternal glycemia and infant and childhood obesity being associated with type 2 diabetes and cardiovascular disease in adult life. The third phase of the study, HAPO for Cardiovascular Health, began recruiting in 2023.

HIV/AIDS clinical trials program provides critical access for patients

Although KPSC's participation dates back to the 1980s, the formal program called the HIV/AIDS Research Trials program wasn't established until almost 2 decades later. William Towner, MD, FACP, FIDSA, and Hai Linh Kerrigan, PharmD, founded the program in 2004.

"This program allows Kaiser Permanente to be on the cutting edge of scientific developments in HIV," said Dr. Towner in an interview with the Kaiser Permanente *HIV Health Matters* newsletter in 2007. Dr. Towner is now the physician director of the Division of Clinical Trials Research.

At the time, access to investigational drugs was vital to people living with HIV/AIDS, particularly if they were no longer responding to other treatments that were available at the time.

2005

Total Joint Registry publishes its first study in the *Journal of Arthroplasty*.

2006

Steven Jacobsen, MD, PhD, is appointed senior director of Research.

2000s

continued

Dr. Michael Kanter

"Our research has truly been a benefit for patients. As a learning health care organization, we generate learning from the care we gave to patients. That's why R&E works so well."

– Michael Kanter, MD

"We don't conduct clinical trials just for the sake of research; we do them as part of our standard of care. We owe this access to our patients," Dr. Kerrigan said in the same edition of *HIV Health Matters.* Dr. Kerrigan is now the division research administrator for clinical trials.

Since the start of the AIDS epidemic, KPSC has served as a research site for nearly 100 HIV clinical trials, enrolling hundreds of patients and taking part in the development of every compound currently available to treat HIV.

The HART program later evolved into a broader program focused on infectious diseases, helping to advance treatment and prevention of many other diseases, including hepatitis, *Clostridioides difficile*, influenza, and more.

An era of exponential growth for research

In 2004, Michael Kanter, MD, who had been doing research as a clinician since the mid-1980s, became regional medical director of Quality and Clinical Analysis for SCPMG. Part of that job was overseeing R&E with support from others.

"Our research has truly been a benefit for patients," Dr. Kanter said. "As a learning health care organization, we generate learning from the care we gave to patients. That's why R&E works so well. There's a certain number of doctors who join Kaiser Permanente because they want to do research. We would lose a lot of talented physicians if they didn't have that opportunity."

When Dr. Petitti left the department, a search began for a new leader. Dr. Kanter wanted someone who could grow the department, lead research that was relevant to clinical care at Kaiser Permanente, and bring in funding to support the growing body of research. In 2005, he interviewed Steven Jacobsen, MD, PhD, who was then leading the epidemiology department at Mayo Clinic.

2007

Dr. Jacobsen becomes a principal site investigator for the Vaccine Safety Datalink.

Integration of research and clinical practice

Dr. Kanter said Dr. Jacobsen's work was to expand the department without a large budget, which meant bringing in funding to support the growing body of research. Dr. Jacobsen recalls with excitement the opportunities and challenges of leading what was then a "really small research shop without a lot of infrastructure."

"Dr. Kanter's directive was he wanted it to grow, but also to grow so it was more integrated into practice," Dr. Jacobsen said. "With each scientist I hired, I was looking for fire in the belly. I looked for passion for the possibility of leveraging our data and the health care system to answer important questions that could lead to changes in health."

Kristi Reynolds, PhD, MPH, who Dr. Jacobsen hired as a research scientist, remembers the enthusiasm and exhilaration of that time.

"I was excited to join R&E because of Steve's mandate to grow the department and all the possibilities to come," said Dr. Reynolds, who is now the director of Epidemiologic Research. "I saw a lot of opportunities to collaborate internally. I was very excited about the chance to work in a learning health care system and potentially see my research findings implemented to address knowledge gaps and ultimately lead to better health outcomes."

Dr. Jacobsen sought to expand cardiovascular research and to bring in-house the vaccine research being done in collaboration with the Vaccine Safety Datalink. Around 2007, Dr. Jacobsen became a principal site investigator for the Vaccine Safety Datalink, which was making important discoveries then and became even more high profile over a decade later during the COVID-19 pandemic.

Dr. Steven Jacobsen

"With each scientist I hired, I was looking for fire in the belly. I looked for passion for the possibility of leveraging our data and the health care system to answer important questions that could lead to changes in health."

– Steven Jacobsen, MD, PhD

2009

Authors from KPSC published more than 250 journal articles, quadruple the number published in 2000

2009

Total research funding reaches $24 million. Nearly 45% came from Kaiser Permanente.

2010s

(front row) Dr. Huong Nguyen, Dr. Adam Sharp, and Dr. Tania Tang (back row) Dr. Carly Parry, Dr. Michael Kanter, Dr. Brian Mittman, and Dr. Michael Gould

Dr. Erin Hahn and Dr. Tania Tang

Emphasis on transforming care drives continued growth of research

Care Improvement Research Team founded

The Care Improvement Research Team was formed in 2012 with the idea to bring together clinicians and scientists to implement innovative interventions into clinical practice and to reduce or eliminate the use of practices that do not provide value in improving care.

Michael K. Gould, MD, MS, then the scientific director of the Division of Health Services Research & Implementation Science, was the first leader of the Care Improvement Research Team.

"When we founded CIRT, there were virtually no similar programs in other hospitals or health systems around the country," said Dr. Gould in a video interview in late 2019. "The idea of bringing researchers and clinical leaders and administrators together was really novel and groundbreaking."

Through CIRT, research scientists team up with frontline clinicians to identify research questions that are important to patients and the doctors who take care of them. CIRT investigators bring rigor and scientific expertise to the process of improving clinical quality, while clinical partners keep the focus on the burning issues of real-world practice.

Early CIRT projects improved care in a variety of ways, from reducing unnecessary antibiotic prescriptions to preventing elderly patients from being readmitted to the hospital. Investigators have helped develop clinical decision tools, implement new models of care, and devise interventions to improve care delivery and health outcomes.

2012

The Care Improvement Team is formed.

New divisions established to manage research program's growth

In 2013 and 2014, the department reorganized into a divisional structure to manage the rapid growth.

"Eight years ago, we had about 60 people working at 100 South Los Robles. Now, we have more than 300. With this kind of growth, communicating about resources, staffing, and planning with all our competing priorities has become much more of a challenge," said an announcement in *Science Matters*, R&E's newsletter at the time.

Researchers and key support staff were grouped into 5 scientific divisions: Behavioral Research, Biostatistics Research, Clinical Trials Research, Epidemiologic Research, and Health Services Research & Implementation Science.

The department also established a Research Administration Division (now the Division of Shared Services) to manage the department's infrastructure support. At the time, it included the Central Business Office, Research IT, Research Database and Clinical Informatics, Research Operations, and Research Communications.

Dr. Deborah Young and Dr. Corinna Koebnick

Mayra Martinez, Dr. Anny Xiang, and Dr. Xinhui Wang

Dr. Ron Loo and Dr. Steven Jacobsen

Research changed clinical practice

The emphasis on using research to improve clinical practice and patient outcomes continued through Dr. Jacobsen's leadership. Among those he remembered most vividly influencing clinical practice at Kaiser Permanente and abroad was work in lung cancer screening, hypertension control, microscopic hematuria, and kidney disease.

One of the success stories resulted from a partnership between Dr. Jacobsen and Ronald K. Loo, MD, the regional chief of urology for SCPMG, which began soon after Dr. Jacobsen took his new post. Dr. Loo and his colleagues wondered if existing guidelines for evaluating microscopic hematuria – blood in the urine that can't be seen by the naked eye – might result in unnecessary tests for some patients. Up to 18% of the population can have microscopic hematuria, including many who are healthy.

The results of the study led to a new risk index and prompted a change in Kaiser Permanente guidelines in 2012. Findings also contributed to a change in guidelines from the American Urological Association in 2020. Dr. Loo and several other SCPMG physicians also conducted a follow-up study in women, which contributed to a guideline change by the American College of Obstetrics and Gynecology.

2013

Research & Evaluation establishes 5 scientific divisions.

2014

Kaiser Permanente selected as a site for National Cancer Institute Community Oncology Research Program.

2010s

continued

Over the next decade, scientists, clinicians, and others conducted research studies that prompted dozens of changes in practices.

Other research-driven practice changes from that time included:

- R&E scientist Kristi Reynolds, PhD, MPH; Ronald Scott, MD, of the West Los Angeles Medical Center; and others published 3 studies focused on why patients were not picking up their initial statin prescriptions. Ultimately, these studies led to the implementation of an outreach program to members who never filled their first statin order.
- John J. Sim, MD, a nephrologist with the Los Angeles Medical Center, did multiple studies on kidney disease. They included a 2018 study that found patients taking prescribed hypertension medications had episodically low blood pressures – systolic blood pressure under 110mmHg – and were twice as likely to experience a fall or to faint as patients whose treated blood pressure remained at 110mmHg or above. The research led to a Best Practice Alert, with the intent of raising awareness to address the situation, evaluate the root cause, and prevent future falls and injuries.
- Dr. Gould led multiple studies aimed at improving care for patients with cancer and respiratory disease. These studies drove practice changes in the evaluation of lung cancer nodules, the prevention of venous thromboembolism, and the implementation of lung cancer screening (see page 57 for additional details).

Over the next decade, scientists, clinicians, and others conducted research studies that prompted dozens of changes in practices. Research-driven changes included new tools in Kaiser Permanente HealthConnect, such as Best Practice Alerts and decision support tools; development of new programs and enhancement of existing Complete Care programs; implementation of new care models and interventions; and de-implementation of practices that are inefficient or less impactful.

2015

Online Personal Action Plan (oPAP) wins Kaiser Permanente's James A. Vohs Award for Quality.

2013 to 2023 A decade of research-driven practice changes

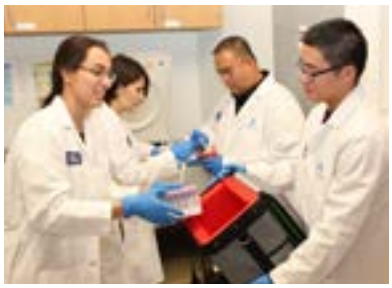
The following are a subset of research-driven practice changes made in the past decade.

Best Practice Alerts	Pediatric blood pressure measurement Low blood pressure in elderly patients treated for hypertension
Clinical guidelines	Follow-up for microscopic hematuria Antihypertensive medication in the elderly
Decision support tools	Shared decision making about implantable cardioverter-defibrillators Identification of patients at risk for venous thrombosis Management of chest pain (HEART) COVID risk scores (COVAS etc.)
Complete Care	New pediatric lead testing outreach program Evaluation and expansion of Online Personal Action Plan (OPAP) Use of OPAP to improve colorectal cancer screening Identification of patients needing follow up for pulmonary nodules through SureNet program Improvements to the Creatinine SureNet program
New care models	Implementation of COMPASS (Care of Mental, Physical and Substance-use Syndromes) Evaluation of Telestroke program Multiple Sclerosis Optimization Program Depression screening for patients with cancer
Interventions	WalkOn! virtual pulmonary rehabilitation program Outreach to increase adherence to statin medication
De-implementation of less impactful care	Antibiotic use for sinusitis Reduction of unnecessary CT scans for head injuries

Research-driven changes included new tools in Kaiser Permanente HealthConnect.

2010s

continued



"The first-floor research clinic has a special significance to KPSC and R&E as it helped us mitigate safety and compliance risks, and significantly expanded capacity for research in KPSC."

– Annie Chen, MBA

Clinical Research Center opens

In 2017, R&E opened the Marilyn Owsley Clinical Research Center, located on the first floor of the research building in Pasadena. The center was named after Marilyn Owsley, then chief financial officer of SCPMG, who was instrumental in bringing the center from an idea to reality.

"The first-floor research clinic has a special significance to KPSC and R&E as it helped us mitigate safety and compliance risks, and significantly expanded capacity for research in KPSC," said Annie Chen, MBA, director of research administration for the Division of Shared Services.

Before construction of the new center, R&E did not have any dedicated research clinical space in the region. The department had to secure clinical space on an ad hoc basis, which was extremely inefficient and tenuous. Study staff were often bumped from these spaces on short notice due to clinical priorities.

"This significantly limited R&E's ability to conduct research with a clinical visit element. In many cases, it prevented us from pursuing research opportunities requiring clinical space in the first place," she added. "When we opened the doors to the center, it opened new opportunities for R&E, including large federal awards that would not have been possible without a clinical research center."

"The Pasadena-based center in some ways also served as a pilot to try out a model for dedicated research space that helped pave the way for the opening of a clinical research center at the Los Angeles Medical Center," she said. "We hope there will be many more to come."

2017

Research & Evaluation opens the Marilyn Owsley Clinical Research Center

2020s

KPSC research draws global attention for COVID studies and more

Research program shined during pandemic

The World Health Organization declared the COVID-19 outbreak a global pandemic on March 11, 2020. On Saturday morning just a few days later, William Towner, MD, FACP, FIDSA, and Hai Linh Kerrigan, PharmD, the leaders of KPSC's clinical trials program in R&E, huddled on a conference call. They discussed the feasibility of quickly launching a trial for an investigational drug called remdesivir, then considered a promising candidate for treatment of COVID-19.

Time was of the essence. The pandemic was closing in. Within days, officials would declare it safer for Californians to stay home, as cases of COVID-19 began to climb in the state. No treatments were yet approved.

Just 8 days after that initial call, the remdesivir trial opened at 13 Kaiser Permanente medical centers in Southern California. The initiative took the collaboration of the clinical trials team and many physicians, pharmacists, nurses, and research staff across the region.

The jump into a clinical trial was just the beginning.

Rapid-cycle research

In those first months of the pandemic, scientists, clinicians, and staff fervently initiated research on the novel coronavirus. Much was unknown at the time. There were no approved treatments, much less a vaccine. Physicians lacked evidence to guide clinical decision-making.

In April 2020, the Regional Research Committee and the Care Improvement Research Team joined forces to initiate a series of rapid-cycle research projects to answer real-word questions about the disease. One of them aimed to help physicians in emergency departments better assess which patients would benefit most from hospitalization. The project led to the development of the COVAS score, which was implemented in Kaiser Permanente HealthConnect in July 2020.

2020

SCPMG clinicians and researchers launch a groundbreaking trial of COVID-19 treatment remdesivir in 8 days.

2020

R&E plunges into COVID vaccine research with key clinical trials, vaccine effectiveness and safety studies.

2020s

continued

"By that time, more than 16 million people had been infected with COVID-19 around the globe."

– William Towner, MD, FACP, FIDSA

"The situation with COVID-19 highlighted the important role that research can play," said Bechien U. Wu, MD, MPH, chair of the Regional Research Committee. "We were dealing with an entirely new disease, with many gaps in our knowledge."

Scientists and clinician researchers initiated a wide range of studies to fill in the gaps in knowledge about the new disease. They studied how conditions like obesity, kidney disease, and cardiovascular disease affected the risk of severe COVID, how racial and ethnic inequities affected COVID-19 outcomes, and how physical activity could reduce the risk of poor COVID outcomes.

Researchers also examined the impact of the pandemic shutdown, including an 80% drop in cervical cancer screenings and a 9% increase in young children being considered overweight or obese. One study looked across the country to see where mask-wearing adherence was highest and what factors were involved.

Patients became participants to aid in COVID research

By late summer 2020, the KPSC clinical trials research team began enrolling participants in the trial for the Pfizer-BioNTech COVID-19 vaccine.

"By that time, more than 16 million people had been infected with COVID-19 around the globe. The pandemic had affected the world profoundly both economically and socially," said Dr. Towner, who served as principal investigator for the vaccine trial in KPSC. "We knew it was imperative that we find a safe and effective vaccine as quickly as possible."

By mid-November, preliminary results showed efficacy results of 95%. A month later, the FDA granted emergency use authorization. On December 14, the first COVID-19 vaccine administered outside of clinical trials in California was given at the Los Angeles Medical Center.

KPSC's successful participation in the Pfizer-BioNTech trial paved the way for participation in additional Pfizer-BioNTech and Moderna COVID-19 vaccine studies in 2021, including 2 pediatric trials and a study assessing a vaccine booster dose in adults.

"Much as with the AIDS epidemic, the COVID-19 pandemic thrust a light on the importance of rapidly done, high-quality research to help bring critically needed therapies to the public," said Dr. Towner. "It has been incredibly inspiring to see how many people have come together in this historic effort to bring the COVID-19 pandemic to an end."

2021

Benjamin Broder, MD, assumes role of interim senior director of Research.

Vaccine makers sought KPSC's expertise

Vaccine makers weren't interested in KPSC only as a place for clinical trials. As Pfizer-BioNTech and Moderna prepared to roll out new mRNA vaccines to the public, they each began discussions with the vaccine research team at KPSC. They realized that KPSC's robust data and expertise in vaccine research made it a perfect place to get accurate, insightful vaccine studies up and running quickly.

Sara Tartof, PhD, led a team working with Pfizer-BioNTech, and Hung Fu Tseng, PhD, led a team working with Moderna. KPSC was awarded large research contracts to study effectiveness of the Pfizer-BioNTech and Moderna vaccines against SARS-CoV-2 variants. The work was aided by a massive expansion of laboratory work that supported whole genome sequencing to identify the SARS-CoV-2 strain.

The work provided real-world evidence to policymakers about booster dose authorization and recommendations including meetings of expert advisory committees for the FDA and CDC. It also drew national and international media attention.

"Our teams have truly been trailblazers in advancing knowledge about the new vaccines, from participating in groundbreaking trials to publishing findings on vaccine safety and effectiveness that have had global influence," said Benjamin Broder, MD, PhD, who became interim senior director of R&E in early 2021. "We couldn't do any of this, of course, without our patients and study participants. I am particularly thankful to the children who took part in the pediatric trials for the new mRNA vaccines, which were finally authorized in June 2022."

Global influence beyond COVID

While vaccine research from KPSC became a regular feature at advisory committees to the CDC and FDA during the pandemic, the influence of our research extended well beyond COVID.

In early 2023, the Institute for Clinical and Economic Review issued new policy recommendations for treatment of relapsing multiple sclerosis that included urging off-label use of rituximab to improve affordability and access to effective treatment. The World Health Organization followed suit a few months later, listing rituximab as an essential medicine for MS.

2022

Research & Evaluation opens a new clinical research center at the Los Angeles Medical Center.

2022

Funding for research at Kaiser Permanente Southern California tops $100 million.

2020s

continued

Both ICER and the WHO cited findings from a 2022 study led by Annette Langer-Gould, MD, PhD, a neuroscientist with SCPMG and affiliated investigator with R&E. The study found that relapse rates plummeted between 2012 to 2018, following the implementation of SCPMG's MS Treatment Optimization Program. During the same time, the cost of treatment fell, partly due to the lower cost of rituximab.

"In addition to being effective and affordable, it's long lasting, so patients don't need to come to the office as often. That also means more people tend to stick with treatment over time," said Dr. Langer-Gould. "What's more, research we conducted in collaboration with Sweden showed similar successes for patients. It really seems to be a game changer."

As the research program moved into its 60th anniversary year, researchers were tapped to lead important new national initiatives. The Patient-Centered Outcomes Research Institute selected KPSC as 1 of 42 health systems nationwide to carry out a pioneering initiative aimed at improving patient outcomes. KPSC was also selected as 1 of 13 sites that will form Insight Net, a national initiative launched by the CDC's Center for Forecasting and Outbreak Analytics (see additional info about both of these awards on pages 46 and 47).

New division established to support clinician researchers

In 2023, the department announced a new Division of Clinician Research to improve support for and engagement of clinician researchers in KPSC. Bechien U. Wu, MD, MPH, is the physician director of the new division.

"Overall, the vision is to be a bridge between R&E and clinical operations to support the clinician research and streamline our programs to support them," he said. "We also want to foster collaboration between clinicians and research scientists, expand research education for physicians, and promote the research that feeds back into the health care of our members."

On a Saturday in late October, the new division hosted the inaugural SCPMG Research Summit, which drew participation from physicians from medical centers across the region. About 60 people, including physicians, scientists, and administrators attended the event, organized around "the intersection of clinical practice, research, and medical education."

2023

Research & Evaluation establishes the Division of Clinician Research.

"We originally planned for a very small group, but there was a lot of momentum, and it grew into something much larger," said Dr. Wu. "That so many people turned out on a Saturday really shows the high level of interest in connecting with other researchers."

At the summit, the division launched a new research network to enable collaboration among clinician researchers with shared interests in clinical topics and research themes, such as health equity, artificial intelligence, and personalized medicine/genomics.

The network also hopes to identify high-priority areas for research with the potential to transform practice.

Searching for new scientists and a new executive director

At end of 2023, R&E looks very different than the early days of research. It is home to 32 scientists and more than 500 staff. It supports hundreds of research projects and clinical trials across KPSC. Research funding approached $100 million – the vast majority from external grants and contracts – an exponential leap from the original budget of $10,000 in 1954.

Having grown rapidly over the past decade and a half, R&E's focus now is on expanding expertise in key strategic areas. One priority is to expand clinician research, particularly with a focus on implementation. The department is also adding new scientists with expertise in mental health research and health equity and expanding its vaccine research team.

Currently, the search is on for a permanent executive scientific director to replace Dr. Broder, who has served as interim scientific director since 2021. Dr. Haque is on the search committee, just as she was when Dr. Jacobsen was hired.

"It's always an exciting time when new leadership comes aboard," she said. "A new director can invigorate our department. Growth needs to happen and that's often with one person leaving and a new person coming in. I'm sure our department's growth and impact will continue."

"It has been a great privilege to serve as interim leader for the department for the past few years and to witness the resilience and dedication of the people of R&E up close during an important historic moment," Dr. Broder said. "I have no doubt that our physicians and scientists will continue to transform the future of health for many years to come."

2023

KPSC tapped as site for 2 key national initiatives: PCORI's Health Systems Implementation Initiative and CDC's Insight Net.

2023

R&E launches search for new executive scientific director.

Research program at a glance

Research at Kaiser Permanente Southern California is conducted through collaboration between scientists and physicians, and supported by a large skilled staff, resources, and rich data from Kaiser Permanente's electronic health record system. The program publishes hundreds of studies each year. Many study results are put into clinical practice quickly to improve care and outcomes for Kaiser Permanente members, and knowledge is shared with the larger medical community.

Research program overview

Investigators & staff

32 FULL-TIME RESEARCH SCIENTISTS

500+ PHYSICIAN RESEARCHERS

Includes clinical trials investigators as well as retired and affiliated SCPMG physicians

500+ RESEARCH AND SUPPORT STAFF

Includes research project managers and research associates, clinical trials support staff, programmers, biostatisticians, and clinical informatics personnel; and division administration, business office, operations, research IT, and communications staff

21 RESEARCH SCIENTISTS

On faculty of Kaiser Permanente Bernard J. Tyson School of Medicine

Projects

500+ ACTIVE STUDIES

Throughout Kaiser Permanente Southern California. Funded by external sources. Projects may include multiple protocols.

350+ ACTIVE CLINICAL TRIALS

Hundreds of physicians participate in research as collaborators and clinical trials investigators.

Publications

650+ JOURNAL ARTICLES

121 CANCER

103 CARDIOVASCULAR DISEASE

82 CHILD AND ADOLESCENT HEALTH

74 COVID-19

51 IMMUNIZATION

30 WOMEN'S HEALTH

29 DIABETES

26 MENTAL HEALTH

To view the full list of 2023 publications, go to:

2023 financial overview

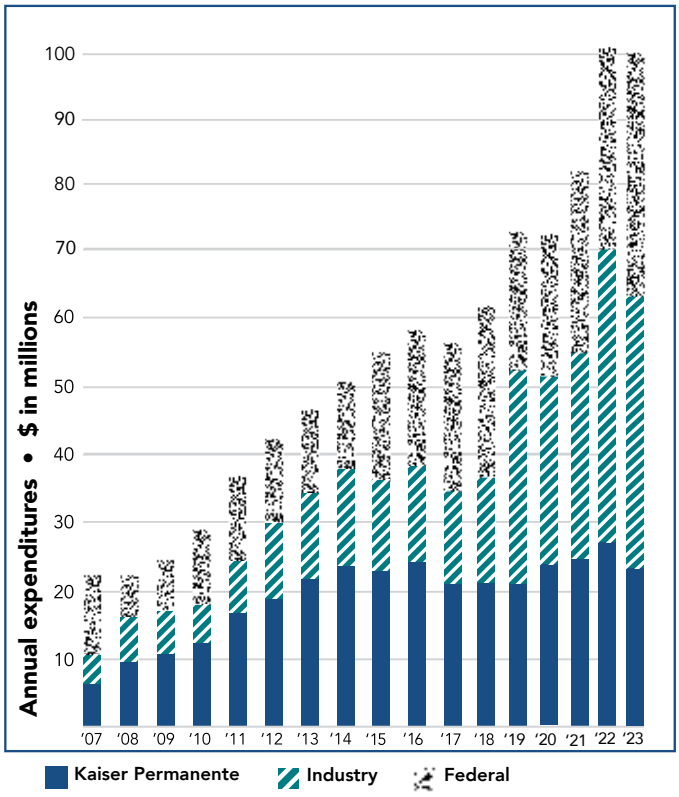
Funding for research at Kaiser Permanente Southern California has increased consistently over the past 2 decades to support a growing portfolio of innovative and clinically relevant research.

Total research funding: $100 million

Federal grants: $36 million

Industry contracts: $40 million

Kaiser Permanente provided the remaining funds. Internal funding sources include the Kaiser Permanente Community Health program, Southern California Permanente Medical Group, the Garfield Memorial Fund, and the Center for Effectiveness & Safety Research.



2023 grant and contract submissions

(new grants only, external only)

158 SUBMITTED

111 AWARDED

New grants and contracts

(all years of funding for multi-year grants; includes clinical trials)

Direct costs:	$49.1 million
Indirect costs:	$23.7 million
Total:	**$72.8 million**

Selected findings

In 2023, Kaiser Permanente Southern California scientists and clinician researchers made important findings in a variety of areas. The following is a small sample of some of these discoveries.

Cancer

5-year cancer survival rates better at Kaiser Permanente

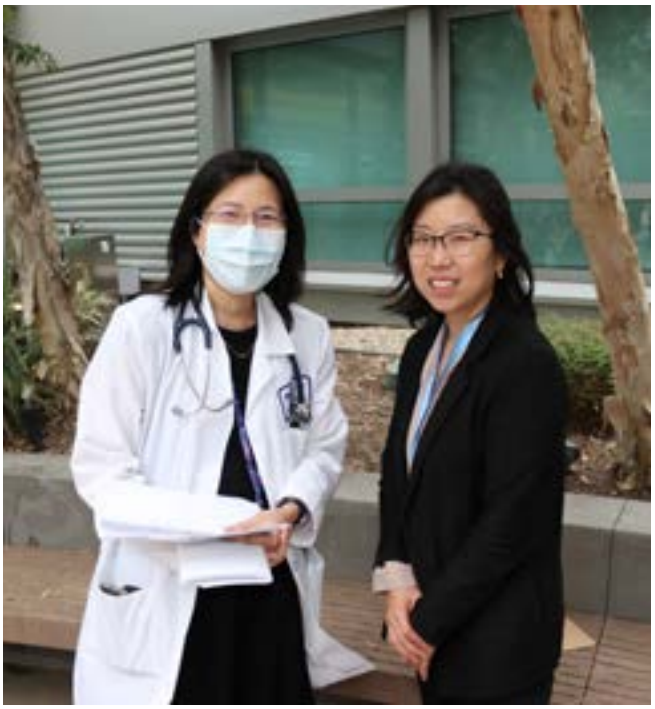
Kaiser Permanente had better 5-year survival rates among breast, colorectal, and lung cancer patients compared to the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) estimates. The study found that breast cancer incidence rates – meaning discovery of new cases of cancer – were consistently higher for Kaiser Permanente than for SEER, and that colorectal and lung cancer incidence rates were lower. In addition, survival rates from these 3 cancers – breast, colorectal, and lung – were consistently higher than national estimates. Researchers in all 8 Kaiser Permanente regions worked together on this study. They said they believe the study shows that Kaiser Permanente's dedication to screening and preventive care, as well as adoption of new cancer treatments, has benefited its members.

Hahn E et al. Perm J. 2023;23.021.

Colon cancer survival rates in Southern California better at Kaiser Permanente

Kaiser Permanente Southern California members diagnosed with colon cancer had better survival rates than insured patients diagnosed in other Southern California hospitals. The research also showed that Kaiser Permanente Southern California members lived longer regardless of their socioeconomic status – a measure of a person's education and income. However, patients with colon cancer diagnosed in hospitals outside of the Kaiser Permanente system were more likely to die earlier if their socioeconomic status was lower. The study included nearly 16,000 insured Southern California adults who were identified through the California Cancer Registry, a statewide cancer surveillance program. The study included patients diagnosed with colon cancer between 2009 and 2014, and researchers followed their survival through 2017. Of the people studied, 26% were Kaiser Permanente members.

Patel J et al. Am Surg. 2023;89(12)5940-5948.



Algorithms applied to CT scans could help detect pancreatic cancer earlier

The most common form of pancreatic cancer, pancreatic ductal carcinoma, is difficult to detect early due to lack of specific symptoms and established screening. In a Kaiser Permanente Southern California study, algorithmic analysis of CT scans of the pancreas accurately identified patients who were diagnosed with pancreatic ductal carcinoma up to 3 years after the images were captured. The researchers trained and tested the algorithms on more than 800 CT scans from people with or without pancreatic ductal carcinoma. A manual assessment of the CT scans in 24–36 months before cancer diagnosis revealed that an overwhelming majority were manually labeled as having low risk, yet the computer algorithms were able to predict the outcome correctly, except for 1 cancer case. The findings suggest promise for this algorithmic approach as an early detection strategy.

Chen W et al. Clin transl gastroenterol. 2023;14(1):e00548.

Cardiovascular health

Long-term prediction tools may aid young adults at risk of cardiovascular disease

In atherosclerotic cardiovascular disease, plaque builds up in arteries, potentially leading to heart attack or stroke. Existing tools can use an adult's medical information to calculate their predicted short- or long-term risk of developing this condition so that preventive steps can be taken, such as taking medications and quitting smoking. However, how well these tools work for younger adults has been unclear. A Kaiser Permanente Southern California study of 414,260 adults aged 18 to 39 found that long-term tools outperformed short-term tools in accurately predicting rates of atherosclerotic cardiovascular disease. These findings suggest that using existing long-term prediction tools in addition to routinely applied short-term tools could help identify more young adults who might benefit from preventive measures.

An J et al. J Am Coll Cardiol. 2023;81(7):623-632.

Low screening rates for hormonal condition that can underlie hypertension

In some cases, a hormonal condition known as hyperaldosteronism may underlie difficult-to-control hypertension. Detecting and treating this condition could help improve blood pressure. A study looking at 102,480 Kaiser Permanente Southern California members with treatment-resistant hypertension found low screening rates for hyperaldosteronism and high rates of this condition among those who were screened. Some of the factors associated with a decision to screen – Black race, diastolic blood pressure, potassium levels, and bicarbonate levels – were also associated with having hyperaldosteronism, but others were not. The findings suggest opportunities to adjust screening strategies to improve outcomes for people with resistant hypertension.

Kim V et al. Perm J. 2024;28(1):3-13.

Telehealth was safe for cardiology patients during COVID-19 pandemic

Risk of cardiovascular events – such as heart attack or heart failure – was no higher for adults who saw cardiologists via telehealth in 2020 during the COVID-19 pandemic than for adults who visited in person in 2019. In this study, 6,485 Kaiser Permanente Southern California members seen via telehealth between March 1, 2020, to August 31, 2020, had lower rates of cardiovascular events within 3 months of their first visit during the study period than 7,557 members seen in person in 2019. These results held true when considering only those aged 75 and over and when extending the follow-up time to 6 months. The findings support the short-term use of telehealth in cardiology clinics for patients of any age.

Woo P et al. Am J Cardiol. 2023;187:171–178.

Opportunities to enhance screening for genetic cholesterol condition

People with the genetic disorder familial hypercholesterolemia face high cholesterol levels that boost their risk of heart disease. A standard pediatric screening process aims to catch the condition early so that cholesterol-lowering drugs can be prescribed. However, analysis of electronic health records of 392,129 Kaiser Permanente Southern California members aged 11 to 17 found that standard screening detected far fewer cases than would be expected from general population rates. More than 1,000 cases likely went undetected, and only 1 out of every 25 kids expected to have familial hypercholesterolemia were on appropriate treatment. The study points to several ways to improve screening, such as educating providers that this condition is not associated with obesity, as well as refining the use of metrics and oversight to improve screening rates.

Cortez AB et al. J Clin Lipidol. 2023;17(5):602-611.

Child and adolescent health

Diabetes increased among kids during pandemic

Rates of both type 1 and type 2 diabetes increased among youth during the COVID-19 pandemic, particularly for those ages 10 years and older, males, and in specific racial and ethnic groups. In this study, researchers compared the rates of new-onset diabetes from the prepandemic period of 2016 through 2019 to rates from 2020 through 2021 among Kaiser Permanente Southern California members under age 20. Rates of new-onset type 1 diabetes increased by 17%, an uptick that was primarily driven by increased diagnoses among 10- to 19-year-olds, males, and Hispanic youth. Rates of new-onset type 2 diabetes increased by 62%, mostly driven by increases in 10- to 19-year-olds and Black and Hispanic youth, but with increases observed in both males and females.

Mefford MT et al. JAMA Netw Open. 2023;6(9): e2334953.

Even a few extra pounds increase hypertension risk for kids

Normal body weight in youth has a very wide range, from skinny to bordering overweight. Youths in the upper range of normal weight had a 26% higher risk of developing hypertension than those closer to what is considered average weight. This retrospective cohort study looked at the electronic health records of 801,019 young people who were members of Kaiser Permanente in Southern California between 2008 and 2015. Researchers compared youths by their BMI and their BMI change during the 5-year follow-up. This allowed the research team to estimate the risk of youth with a certain BMI independently of future weight gain. Researchers also looked at their blood pressure to determine who had hypertension. The study of hypertension among a diverse population of children in Southern California showed the detrimental effects of even a few extra pounds on young people.

Koebnick C et al. JAMA Netw Open. 2023; 6(3):e231987.

COVID-19

Paxlovid reduced severe COVID health risks

A Kaiser Permanente study confirmed the benefit of nirmatrelvir-ritonavir, also known as Paxlovid, as an early-stage treatment to prevent hospitalization for people with mild-to-moderate COVID-19, regardless of prior immunity or age. Receiving Paxlovid within 5 days of the start of COVID-19 symptoms was associated with substantial reductions in the risk of hospital admission or death, the study showed. The findings were even more notable because in the study population from Kaiser Permanente Southern California, where there were high levels of vaccination, researchers still saw additional benefits from Paxlovid.

Lewnard J et al. Lancet Infect Dis. 2023;7:806-815.

Geriatrics

Older adults at no higher fall risk with 2 key drugs

Among 195,207 adults over 65 diagnosed with depression, anxiety, or peripheral neuropathy, those treated with the drug nortriptyline had a lower risk of falls, fractures, and fainting than those treated with 10 other common alternative medications. Patients on the drug paroxetine had a similar risk of such events as those treated with other similar alternative medications. In contrast with clinical guidelines that recommend against nortriptyline and paroxetine for older adults in the United States, these findings support use of these 2 drugs when appropriate.

George MM et al. BMJ Open. 2023; 13(12):e076028.

Gun violence research

Adult firearm injuries increased in Southern California

There was an increase in non-self-inflicted firearm injuries between 2010 and 2020 among adults, according to a study that looked at the electronic health records of more than 7 million Kaiser Permanente Southern California members. The study also found that the incidence of overall firearm injuries – including both self-inflicted and non-self-inflicted injuries – increased in adults during the study period, reaching 11.42 injuries per 100,000 members in 2020. The rate of self-inflicted firearm injuries decreased over time, with a slight increase in 2020, indicating that more people are suffering gunshot injuries that are not self-inflicted. There were no significant changes in firearm injuries among youth.

Sidell M et al. BMC Public Health. 2023;23(1):2220.

Health Equity

Racial disparities seen in rise of severe pregnancy complications

A study looking at 335,310 births at Kaiser Permanente Southern California hospitals found that between 2008 and 2017, women experienced an increase in rates of potentially life-threatening medical complications during pregnancy. Such events are varied and may include heart failure, hysterectomy, and kidney failure. Non-Hispanic Black, Asian/Pacific Islander, and Hispanic women were more likely to have a serious medical event during pregnancy than non-Hispanic white women, even after accounting for preexisting health conditions. These findings highlight the need to uncover structural and social factors that may underlie the disparities, which could help shape new strategies to reduce risk of severe pregnancy complications.

Oakley LP et al. Womens Health Issues. 2023;33(3):280-288.

Program reduced racial disparities in blood pressure control

A Kaiser Permanente Southern California quality improvement program, which harnessed clinical and culturally responsive care strategies, nearly halved the racial disparities previously seen in blood pressure control between Black and white adults. The research looked at more than 624,000 KPSC patients with hypertension and compared the time before the program was implemented (2008 to 2009) to after implementation (2016 to 2019). Throughout the study period, the proportion of patients with blood pressure control at KPSC was higher than the proportion among the general U.S. population. The results highlight the need for similar quality improvement programs to address health equity across the nation.

Harrison T et al. JAMA Netw Open. 2023;6(1):e2249930.

HIV

One HIV prevention medication may raise blood pressure

People who use tenofovir alafenamide fumarate (TAF) to protect themselves from contracting HIV have an elevated risk of hypertension and statin initiation compared to those who use tenofovir disoproxil fumarate (TDF). This retrospective cohort study looked at more than 6,000 adult Kaiser Permanente Southern California members who started HIV pre-exposure prophylaxis (PrEP) between October 2019 and May 2022. TAF use was associated with a higher likelihood of newly detected hypertension within 2 years of PrEP initiation compared to TDF use. TAF use also was associated with an elevated risk of statin initiation, especially for those age 40 or older.

Rivera AS et al. JAMA Netw Open. 2023;6(9):e2332968.

Hospital medicine

Alternative metric falls short in predicting sepsis death

People with severe sepsis may develop lactic acidosis – a buildup of lactic acid in the blood, which is associated with higher risk of death. Measuring blood lactate levels can reveal the severity of lactic acidosis and help predict risk of in-hospital death for sepsis patients. Prior studies have suggested that better predictions could be made using an alternative metric that calculates levels of other molecules in the bloodstream collectively known as unmeasured organic anions. However, a Kaiser Permanente Southern California study that reviewed past records of 526 adult intensive care unit patients with sepsis found that this alternative metric was not useful for predicting whether they would die in the hospital. However, unmeasured organic anions may rise earlier and in response to less severe infection compared to serum lactate, allowing for earlier detection and treatment of sepsis. These findings help deepen understanding of clinical possibilities for sepsis care.

Hussain M et al. J Intensive Care Med. 2023;38(10):975-982.

Maternal-child health

Researchers develop new postnatal growth charts

Preterm infants have distinct postnatal growth patterns compared to in-womb growth, challenging the validity of traditional practices that solely compare postnatal growth to in-womb growth to guide nutrition delivery in neonatal intensive care units. The findings have important implications for clinicians and families who, for decades, have relied on fetal growth charts to monitor growth and development in preterm infants and guide interventions meant to keep growth on track. The new postnatal growth charts developed by the researchers not only reveal 3 postnatal growth phases not seen in in-womb growth, but also help clinicians determine with confidence whether an infant's growth is on track or not.

Chou FS et al. J Perinatol. 2023.

Chou FS et al. Nat Commun. 2023;14(1):5626.

Unnecessary screening for babies identified

Discontinuation of predischarge car seat tolerance screening at Kaiser Permanente Southern California was not associated with poor health outcomes for the babies during their first 30 days after discharge. Predischarge car seat tolerance screenings have been recommended by the American Academy of Pediatrics since 1991. This study included 41,264 infants born from 22 through 36 weeks' gestational age at KPSC hospitals from 2010 through 2021. The researchers looked at electronic health records to determine the infants' health after they left the hospital including reports of death, 911 calls and readmissions. They compared the health of the infants during the time the screening was in place to after it was discontinued. They found no statistically significant differences between the screening period and the discontinuation periods. Each screening typically takes a nurse about 2 hours, time that could be spent helping babies and parents in other ways, the researchers noted.

Braun D et al. J Pediatr. 2023;261:113577.

Epidural during birth may be linked to risk of autism spectrum disorder

A study of 205,994 pediatric members of Kaiser Permanente Southern California found that those whose mothers received epidural anesthesia during labor and delivery were 20% more likely to be diagnosed with autism spectrum disorders than those whose mothers received neither an epidural nor the labor-promoting drug oxytocin. Children whose mothers received oxytocin in addition to an epidural were 30% more likely to be diagnosed with autism spectrum disorders, but those whose mothers received oxytocin alone did not face any greater risk. The researchers caution that these findings do not imply a cause-effect relationship and more research is needed to reach any firm conclusions.

Qiu C et al. JAMA Netw Open. 2023; 6(7):e2324630.

Pregnant mom exposure to plane particles tied to autism risk

Children of mothers who had a higher estimated exposure to ultrafine particles from aircraft during pregnancy faced a slightly elevated risk of being diagnosed with an autism spectrum disorder. In this study of 370,723 children born at Kaiser Permanente Southern California hospitals, a statistical association between exposure and diagnosis remained even after accounting for estimates of total exposure to all different kinds of particulate matter, exposure to road traffic air pollutants, and residential noise levels. These findings underscore aircraft emissions as a potentially key target for regulations to improve public health.

Carter SA et al. Environ Int. 2023;178:108061.

Mental health

Self-injury higher for transgender youth, regardless of mental health

A study of 2,518 transgender and gender diverse youth – whose assigned sex at birth does not match their gender identity – found that they experienced higher rates of self-inflicted injury than seen in a comparison group of cisgender youth, even for those without mental health conditions. The study, which included Kaiser Permanente members in Southern California, Northern California, and Georgia, also showed that transgender and gender-diverse youth were more likely than cisgender peers to have been

diagnosed with various mental health conditions and to have multiple mental health diagnoses. These findings support the existence of unique risk factors faced by transgender youth and underscore the need for suicide prevention efforts for all youth, regardless of mental health, and more intensive prevention for transgender youth and youth with mental health conditions.

Pampati S et al. Ann Epidemiol. 2023;81:40-46.e2.

Race may influence links between mental illness and financial disruptions

A Kaiser Permanente Southern California study explored the role of race in the relationship between serious mental illness and the likelihood of experiencing disruptive life events defined as financial (bankruptcy and lien filings), and non-financial (arrests). The study combined electronic health records and consumer credit report data for 16,159 adults with schizophrenia, 30,008 adults with bipolar I disorder, and a comparison group of 45,391 patients without serious mental illness. Of all groups, Asian patients with bipolar I disorder were most likely to experience a financial disruptive life event. Black patients with schizophrenia were the least likely of all – including people without serious mental illness – to experience financial disruptions. Race did not affect the relationship between serious mental illness and likelihood of arrest. Financial disruptive life events are more likely to occur for patients who were able to accumulate enough wealth to have liens placed against them and to be able to discharge of debt via bankruptcy. These findings suggest a need for clinical initiatives focused on Asian patients with bipolar I disorder and services that support their financial wellbeing.

Coleman KJ et al. Gen Hosp Psychiatry. 2023;85:80-86.

Credit report data can aid research into schizophrenia or bipolar I disorder

Mental health research is hampered by a lack of reliable data on disruptive life events, such as arrests, bankruptcies, and court judgment filings. A study of 46,167 people with schizophrenia or bipolar I disorder demonstrated that disruptive events captured in publicly available data from a consumer credit reporting agency can be combined with electronic health records to uncover new insights. It found that people with bipolar I disorder were more likely to experience financial disruptive life events than people with schizophrenia or without serious mental illness. People with schizophrenia or bipolar I disorder were more likely to be arrested than people without serious mental illness. This study suggests that data from a credit reporting agency could aid development of treatment strategies to improve real life outcomes of patients with serious mental illness, but the researchers caution that such efforts must also protect patient privacy.

Nau CL et al. JAMA Psychiatry. 2023;80(7):710-717.

Vaccine safety and effectiveness

Bivalent COVID booster keeps people out of hospital

By the end of 2022, people who had been previously vaccinated with the original monovalent vaccines had little protection against COVID-19 – even for hospital admission. However, a study showed that the Pfizer-BioNTech BNT162b2 BA.4/5 bivalent mRNA vaccine restored that protection. The Pfizer vaccine helped protect against a range of COVID symptoms and was effective against the COVID XBB strain sublineages. The most substantial benefit of the bivalent vaccine booster was keeping people out of the hospital and from becoming critically ill.

Tartof S et al. Lancet Respir Med. 2023;10:1089-1100.

Fewer doctor visits for kids with 2 doses of monovalent COVID vaccine

Monovalent COVID-19 mRNA vaccines were recommended for children ages 6 months through 4 years on June 18, 2022. However, COVID-19 vaccine uptake in this age group was low, with less than 5% completing a primary vaccine series as of May 24, 2023. This study bolstered the recommendation for vaccinating children by showing that receiving at least 2 doses of the Pfizer- BioNTech COVID-19 vaccine was associated with reduced chances of children needing to be seen in the emergency department, urgent care, or outpatient clinic related to a COVID-19 diagnosis. In the study, researchers examined 24,261 emergency department, urgent care, and outpatient acute respiratory encounters in patients 6 months through 4 years old at Kaiser Permanente Southern California between July 23, 2022, and May 19, 2023.

Tartof S et al JAMA. 2023;330(13):1282-1284.

Immunocompromised people not getting their full COVID vaccines

Only 1% of people who were immunocompromised had received the 5 mRNA COVID-19 vaccine doses recommended by the Centers for Disease Control and Prevention by August 2022. A variety of illnesses or medications – including autoimmune disorders, some types of cancer, HIV infection, organ transplant, and certain antibiotics – can make someone immunocompromised. Immunocompromised people are at greater risk of severe COVID-19 outcomes, although research shows that booster doses of COVID-19 vaccines lower this risk. The study looked at more than 40,000 Kaiser Permanente Southern California members who were immunocompromised. Given that Kaiser Permanente is a leader in vaccine uptake and preventive care, the study suggested a widespread problem in the United States. Researchers considered the findings a "wake-up call" to promote adherence to vaccine recommendations among people who are immunocompromised.

Tartof S et al. JAMA Netw Open. 2023; 6(1):e2251833.

Bivalent booster provides additional protection

The Moderna mRNA-1273 bivalent booster provides additional protection against COVID19 appointments, hospitalization, and death. The study, published in September 2023, compared people who did not receive bivalent mRNA vaccination but received 2 or more doses of any monovalent mRNA vaccine. The people who had the bivalent vaccine had a lower risk of COVID-19 appointments, hospitalization, and death. The protection continued for 3 or more months after people received the bivalent booster. The research was cited as evidence at the CDC's September 2023 Advisory Committee on Immunization Practices meeting to inform recommendations for use of COVID-19 vaccination in the United States.

Tseng HF et al. Nat Commun. 2023;14(5851).

Original COVID-19 booster effect wanes against new variants

Third and fourth doses of the monovalent Moderna mRNA-1273 COVID-19 vaccine lose protection against infection with omicron subvariants after 3 months, but protection against hospitalization

remains high in adults. (The study was completed before the new bivalent mRNA booster vaccine became available in September 2022.) The study included 123,236 people ages 18 and older who tested for COVID-19 within Kaiser Permanente Southern California between January 1 and June 30, 2022. It showed that protection for people who received 3 or 4 doses of monovalent Moderna vaccine against infection with omicron BA.4 and BA.5 lasted no more than 3 months after their third or fourth doses. The 3-dose and 4-dose vaccine effectiveness against hospitalization for BA.4 and BA.5 remained high beyond 3 months after vaccination, including among people with compromised immune systems.

Tseng HF et al. Nat Commun. 14, 189 (2023).

No increased risk of non-COVID-19 death after vaccination

Risk of death from causes other than COVID-19 was not higher for people who received any of the 3 COVID-19 vaccines used in the United States – commonly known as the Pfizer, Moderna, and Johnson & Johnson vaccines – than for people who were not vaccinated. These results held true even after accounting for various factors that could impact mortality, including recent medical visits, demographic characteristics, socioeconomic status, and clinical factors. The study analyzed data from nearly 7 million U.S. members of 7 Vaccine Safety Datalink sites, including Kaiser Permanente Southern California. The findings have potential to support efforts aimed at addressing vaccine hesitancy.

Xu S et al. Vaccine. 2023;41(3):844-854.

Selected grants and contracts

Our scientists and clinician researchers lead studies that have the potential to change practice well beyond the walls of our clinics and hospitals. Many studies receive external funding from federal agencies, nongovernmental organizations, and industry sponsors. The following is a selection of new 2023 awards for federal- and state-funded projects lead by Kaiser Permanente Southern California investigators.

Longitudinal assessment of benefits and harms of cannabis use among community-based cancer patients during initial cancer treatment

Medical use of cannabis has been legalized in 37 states, including California. Although there is limited evidence of its effectiveness, between 18 to 25% of patients with cancer report using cannabis to manage symptoms. Researchers will conduct a study of 1,000 adult cancer patients and compare outcomes for those who use cannabis and those who don't. The study will assess multiple patient-reported outcomes, including pain, nausea, anxiety, depression, insomnia, appetite loss, and overall health-related quality of life. Researchers will also assess how cannabis use affects the use of standard palliative therapies, such as opioid use, and examine the negative effects of cannabis use. The study will provide added information for patients and health care providers about whether to consider using cannabis alongside other conventional ways to manage cancer-related symptoms.

Principal investigators: Reina Haque, PhD, MPH, and Arnold L. Potosky, PhD, MHS (Georgetown University)

Funding agency: National Cancer Institute

Comparing the effects of pharmacological treatment for gestational diabetes

Gestational diabetes, one of the most common complications of pregnancy, increases the risk of perinatal complications and long-term sequelae for both mother and child. The initial treatment recommended for gestational diabetes is nutritional therapy, but up to 50% of patients require pharmacologic therapy as well. However, long-term effects and the most appropriate pharmacological treatment are unknown. Researchers will conduct a longitudinal cohort study of more than 44,000 Kaiser Permanente Southern California and Kaiser Permanente Northern California members, including pregnant individuals and their children,

with varied exposure to metformin, glyburide, and insulin during pregnancy. They will use causal and statistical methods to emulate inferences from conceptual randomized controlled trials, conducting a series of real-world data cohort studies based on retrospective data with criteria and follow-up that mimic randomized controlled trials. The study will inform clinical practice by providing head-to-head comparisons of 3 treatment strategies – metformin, glyburide, and insulin – for gestational diabetes.

Principal investigators: Anny H. Xiang, PhD, MS; Monique M. Hedderson, PhD, (Kaiser Permanente Northern California); and Romain Neugebauer, PhD (Kaiser Permanente Northern California)

Funding agency: National Institute of Diabetes and Digestive and Kidney Diseases

Effects of prenatal exposures to maternal obesity and gestational diabetes on metabolic decline from childhood to adolescence and underlying neurobiological pathways

Childhood obesity rates are rising along with the prevalence of type 2 diabetes in youth. Growing evidence suggests that exposure to maternal obesity and/or gestational diabetes may contribute to these trends. Previous studies have shown that children

exposed to maternal obesity or gestational diabetes in utero have greater body fat accumulation and are at higher risk for developing type 2 diabetes. The biological mechanisms underpinning these risks are not well understood. Studies in rodents suggest that intrauterine exposure to maternal obesity and/or diabetes led to changes in the hypothalamus, an area of the brain critical to the regulation of appetite and blood sugar. Researchers will test the hypothesis that in utero exposure to maternal obesity and/or gestational diabetes causes altered development of brain pathways, leading to positive energy balance and susceptibility for obesity and insulin resistance, followed by beta cell decompensation and type 2 diabetes. The study includes over 200 children ages 7 to10 who were born at Kaiser Permanente Southern California. The children will be followed through adolescence. The study has the potential to translate findings about the biological mechanisms into early intervention strategies aimed at breaking the cycle of obesity and diabetes in mothers and children.

Principal investigators: Anny H. Xiang, PhD, MS, and Kathleen Alanna Page, MD (USC)

Funding agency: National Institute of Diabetes and Digestive and Kidney Diseases

Using machine learning to accelerate our understanding of risks for early substance use among child-welfare and community youth

Adolescence is a critical time to prevent substance abuse. Screening methods in primary care, however, miss a substantial portion of adolescents at risk for substance abuse. Adolescents who have experienced maltreatment are more susceptible to early substance use and for progression to addiction, but research is lacking on risk predictors for youth involved with the child welfare system. This study will apply machine learning techniques to identify risk factors specific to the child-welfare population as well as factors that are common to youth with and without involvement with child welfare. Researchers will then use this information to develop a risk score to aid clinical decision making. Findings from this study have the potential to help clinicians more accurately identify adolescents at risk and refer them to treatment pathways to prevent substance abuse.

Principal investigators: Sonya Negriff, PhD, and Bistra Dilkina, PhD (USC)

Funding agency: National Institute on Drug Abuse

Improving lipid management strategies in young adults

Lipid-lowering therapy can markedly reduce the risk of atherosclerotic cardiovascular disease for people with elevated LDL cholesterol, but questions remain about the optimal age for initiating therapy. Despite increasing rates of atherosclerotic cardiovascular disease in young adults ages 18 to 39 over the past 2 decades, use of lipid-lowering therapy remains low in that age group. There is little evidence to guide lipid management in young adults. Researchers will study 805,000 young adults from Kaiser Permanente Southern California and 4 cohort studies (the Coronary Artery Risk Development in Young Adults Study, the Framingham Heart study, the Hispanic Community Health Study/Study of Latinos, and the Jackson Heart Study) to inform lipid management strategies. The researchers aim to improve risk assessment for atherosclerotic cardiovascular disease and assess benefits and harms of lipid-lowering therapy for young adults. Findings from this study will inform future guidelines to more effectively lower lipid levels, prevent atherosclerotic cardiovascular disease, reduce health inequities, and promote cardiovascular health in young adults.

Principal investigators: Jaejin An, PhD, and Yiyi Zhang, PhD, MS (Columbia University)

Funding agency: National Heart, Lung, and Blood Institute

Predicting exacerbations of asthma in real-world patients with low medical utilization

Asthma affects more than 20 million Americans. People with mild asthma are estimated to make up 50% to 75% of the asthma population and their reported prevalence is likely to be underestimated. Despite being categorized as having mild disease, a significant proportion of people with mild asthma have considerable clinical burden and health care utilization. Risk factors for asthma exacerbations have been studied in people with persistent asthma but little is known about risk factors in people with mild asthma. This study will tap into data from Kaiser Permanente Southern California's electronic health record as well as other external data sources, such as air quality measures and social determinants of health, to identify potential risk factors for asthma exacerbations in people with mild asthma. Researchers will also establish a prospective cohort of patients with intermittent asthma and collect patient-reported information to gather more insights. Researchers will subsequently develop and validate a risk prediction model. Findings from this research will present opportunities to personalize care, improving the quality of care and reducing the burden of asthma in this growing population.

Principal investigator: Wansu Chen, PhD, MS

Funding agency: National Heart, Lung, and Blood Institute

Pooling international cohort studies of long-term bisphosphonate use and atypical femur fractures

Bisphosphonate medications – a group of drugs that slow bone loss – are extremely effective in reducing hip and spine fractures. Use of these drugs has declined, however, due to concerns about atypical femur fractures, a rare adverse event associated with long-term bisphosphonate use. Balancing the protection from typical osteoporosis-related fractures against the risk of the much rarer risk of atypical femur fractures is an important component of patient and clinician decisions about medication use. In this study, researchers will use individual-level data from 3 large cohort studies (from Kaiser Permanente Southern California, Sweden, and Denmark) to identify women at particularly high or low risk for atypical femur fractures. They will use this information

to develop prediction models and risk scores that will help clinicians individualize recommendations to patients and balance the risks of atypical fractures against the potential of preventing more typical fractures.

Principal investigators: Annette Adams, PhD; Dennis Black, PhD (UC San Francisco); and Douglas Bauer, MD (UC San Francisco)

Funding agency: National Institute of Arthritis and Musculoskeletal and Skin Diseases

Health System Implementation Initiative Capacity Building Project

Kaiser Permanente Southern California was 1 of 42 health systems selected to participate in the Health Systems Implementation Initiative, a nationwide network launched by the Patient-Centered Outcomes Research Institute in 2023. This capacity-building project will focus on further strengthening the organization's learning health system mechanisms and preparing leaders and staff to participate in future HSII implementation projects. A primary goal will be producing an evidence-based practice implementation playbook for the region. This playbook will provide guidance that KPSC will use to prioritize and facilitate implementation and evaluation of future HSII projects.

Principal investigators: Nancy Gin, MD, and Huong Nguyen, PhD, RN

Funding agency: Patient-Centered Outcomes Research Institute

Outbreak Analytics and Disease Modeling Network

Kaiser Permanente Southern California was selected as 1 of 13 sites that will form Insight Net, a national initiative launched by the Centers for Disease Control and Prevention Center for Forecasting and Outbreak Analytics, in 2023. Researchers from KPSC, UC Berkeley, and UC San Francisco will collaborate to develop advanced modeling approaches to better predict disease outbreaks and prepare the United States for future public health emergencies. The team will work closely with public health agencies, including the California Department of Public Health, the Los Angeles County Public Health Department, and the Pasadena Public Health Department. Goals for the center include using more efficient data analytics to improve public health response activities, optimizing real-time infectious disease modeling efforts, producing and incorporating novel data sources to improve surveillance data for forecasting, and contributing to the development of a trained workforce in infectious disease modeling and outbreak analytics.

Principal investigators: Sara Tartof, PhD, MPH, and Joseph Lewnard, PhD (UC Berkeley)

Funding agency: Centers for Disease Control and Prevention

VISION Vaccine Effectiveness Network

In 2023, Kaiser Permanente Southern California was selected as a site in the VISION Vaccine Effectiveness Network. The network is a research collaboration between the Centers for Disease Control and Prevention, Westat, and selected health care systems with integrated clinical, laboratory, and vaccination records. By participating in the network, KPSC researchers will help assess the effectiveness of seasonal influenza and RSV (respiratory syncytial virus) in preventing infection with those diseases. They will also assess information on severe outcomes among people hospitalized with laboratory-confirmed flu and COVID-19 including intensive care unit admission, invasive mechanical ventilation, and in-hospital death. These data help inform how well flu vaccines, RSV vaccines, and COVID-19 vaccines protect against severe outcomes.

Principal investigator: Sara Tartof, PhD, MPH

Funding agency: Centers for Disease Control and Prevention

Collaboration with Center for Forecasting Outbreak Analytics

Kaiser Permanente Southern California will collaborate with the Centers for Disease Control and Prevention to improve public health surveillance and expand the Center for Forecasting and Outbreak Analytics' data network. This project builds on a framework developed during the COVID-19 pandemic, which provided real-time answers to high-priority questions, including clinical outcomes and immune escape associated with various omicron lineages and the effectiveness of newly implemented antiviral treatments. The CDC will collaborate with KPSC investigators to estimate trends and to detect, monitor, and characterize emerging infectious and non-infectious threats as they arise.

Principal investigator: Sara Tartof, PhD, MPH

Funding agency: Centers for Disease Control and Prevention

Selected clinical trials

In 2023, the Kaiser Permanente Southern California clinical trials program supported more than 350 protocols across 30 therapeutic areas. Participation in these pivotal clinical trials keeps Kaiser Permanente at the leading edge of medicine. It also supports access for Kaiser Permanente members to participate in groundbreaking trials for investigational drugs, devices, and vaccines.

KPSC remains a top enroller in many important clinical trials, including trials for cardiac devices and cancer treatments. The program continued to open new trials in 2023 to advance prevention and treatment of many different conditions, from macular degeneration to mpox.

Trials receive funding from industry sponsors, foundations, research networks, and federal agencies. In 2023, federal funding sources included the National Cancer Institute, the National Institute for Allergy and Infectious Diseases, and the National Institute of Neurological Disorders and Stroke Trials Network, among others.

The studies below are a small selection of the clinical trials at KPSC. More information about each trial can be accessed using the National Clinical Trials (NCT) number included with each entry.

CANCER

A randomized trial of inotuzumab ozogamicin for newly diagnosed high-risk B-ALL, mixed phenotype acute leukemia, and B-LLy

This Phase 3 trial is for patients between the ages of 1 and 25 years old with newly diagnosed high-risk B-lymphoblastic lymphoma (B-ALL), mixed phenotype acute leukemia, or disseminated B-lymphoblastic lymphoma. The study will assess whether the incorporation of 2 blocks of inotuzumab ozogamicin – a monoclonal antibody – improves outcomes when added to post-induction chemotherapy for patients with high-risk B-ALL. The trial will also study outcomes of patients with mixed phenotype acute leukemia or B-LLy when treated with ALL therapy without inotuzumab ozogamicin. This was 1 of 2 high-enrolling trials from the Kaiser Permanente Southern California pediatric oncology portfolios in 2023.

Principal investigator: Robert M. Cooper, MD

Participating locations: Los Angeles, Downey, San Bernardino County, Orange County

NCT03959085

Tafasitamab + lenalidomide + R-CHOP versus R-CHOP in newly diagnosed high-intermediate and high-risk diffuse large B-cell lymphoma patients

This Phase 3 trial will compare the efficacy and safety of tafasitamab plus lenalidomide in addition to R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone) versus R-CHOP on its own in patients with previously untreated, high-intermediate and high-risk patients with newly diagnosed large B-cell lymphoma. The trial, which is evaluates adding 2 novel targeted therapies to the current standard of care, has the potential to improve the standard of care for treating patients with large B-cell lymphoma.

Principal investigator: Ashraf Aziz, MD

Participating locations: Baldwin Park, Downey, Los Angeles, Orange County, San Diego, South Bay, Ventura County

NCT04824092

A randomized double-blind trial of abatacept extended dosing versus abatacept short-term dosing for graft versus host disease prophylaxis

This Phase 2 trial will compare the effect of an extended abatacept dose versus a short term abatacept dose given in combination with a calcineurin inhibitor (cyclosporine or tacrolimus) and methotrexate in preventing graft versus host disease (GVHD) after bone marrow transplant in patients with blood cancers. GVHD is a common complication for patients who have received bone marrow transplants, in which transplanted cells attack the body's normal cells. It can cause significant symptoms, reduce functional status, and result in loss of quality of life. Calcineurin inhibitors and methotrexate are standard of care drugs given to help prevent GVHD. Abatacept is a drug that works to decrease the body's immune response by blocking activation of T-cells. The trial will compare outcomes for patients for a minimum follow up of 1-year post transplant. Several Kaiser Permanente members are participating in this trial through the Kaiser Permanente/City of Hope's Bone Marrow Transplant Program.

Principal investigator: Monzr M. Al Malki, MD (City of Hope)

Participating locations: Los Angeles

NCT04380740

Testing the addition of the chemotherapy drug lomustine to the usual treatment for newly diagnosed MGMT-methylated glioblastoma

This Phase 3 trial compares the effect of adding lomustine to temozolomide and radiation therapy versus temozolomide and radiation therapy alone in shrinking or stabilizing newly diagnosed MGMT-methylated glioblastoma. Chemotherapy drugs, such as lomustine and temozolomide, work in different ways to stop the growth of tumor cells, either by killing the cells, by stopping them from dividing, or by stopping them from spreading. Radiation therapy uses high-energy photons to kill tumor cells and shrink tumors. Adding lomustine to usual treatment of temozolomide and radiation therapy may help shrink and stabilize glioblastoma. This study could determine if a regimen of temozolomide and lomustine with radiotherapy significantly prolongs progression-free survival.

Principal investigator: Richard Green, MD

Participating location: Los Angeles

NCT05095376

De-escalation of breast radiation trial for hormone sensitive, HER-2 negative, oncotype recurrence score less than or equal to 18 breast cancer

This Phase 3 trial will compare the effect of breast conservation surgery and endocrine therapy to breast conservation with breast radiation and endocrine therapy on the rate of invasive or non-invasive ipsilateral breast tumor recurrence. This study will help determine if it may be appropriate to reduce or omit adjuvant breast radiotherapy for patients with low-risk, early-stage breast cancer. If it can be omitted in patients at low risk in the 50- to 70-year age range, that could reduce future risks of secondary malignancies, radiotherapy-associated heart disease, and cosmetic complications associated with adjuvant radiotherapy.

Principal investigator: Michael Girvigian, MD

Participating location: Los Angeles

NCT04852887

A study of trastuzumab deruxtecan versus trastuzumab emtansine in high-risk HER2-positive participants with residual invasive breast cancer following neoadjuvant therapy (DESTINY-Breast05)

This Phase 3 study will examine the efficacy and safety of trastuzumab deruxtecan compared with trastuzumab emtansine in high-risk patients with residual invasive breast cancer following neoadjuvant therapy. Patients with HER2-positive primary breast cancer who do not achieve complete response after appropriate neoadjuvant therapy are at higher risk of disease recurrence. More effective treatment options are needed for this patient population. Trastuzumab deruxtecan has demonstrated high, durable response rates in subjects previously treated with trastuzumab emtansine with unresectable or metastatic breast cancer. This study will examine outcomes for patients in the 2 treatment arms, including invasive disease-free survival.

Principal investigators: Helen Moon, MD, and Laura Durna, MD (transitioned to Sujatha Murali, MD, in 2024)

Participating locations: Baldwin Park, Downey, Los Angeles, Orange County, Riverside County, San Bernardino County, San Diego, South Bay, Ventura County

NCT04622319

Colon adjuvant chemotherapy based on evaluation of residual disease

This Phase 2/3 trial will evaluate what kind of chemotherapy to recommend to patients after surgery for colon cancer based on the presence or absence of circulating tumor DNA (ctDNA). Currently, there are no biomarkers validated prospectively in randomized studies for resected colon cancer to determine the need for adjuvant chemotherapy. Colon cancer patients who do not have detectable levels of ctDNA are at significantly lower risk for recurrence and may not need adjuvant chemotherapy. At the same time, the optimal adjuvant chemotherapy regimen has not been established in patients with detectable levels of ctDNA, who are at higher risk for recurrence. This trial is expected to impact the standard of care for patients, providing new evidence for recommendations on which chemotherapy regimen should be given and when the patient should receive the chemotherapy.

Principal investigator: Gary L. Buchschacher Jr, MD, PhD

Participating locations: Baldwin Park, Downey, Los Angeles, Orange County, San Bernardino County, San Diego, South Bay, West Los Angeles

NCT05174169

Oregovomab plus chemo in newly diagnosed patients with advanced epithelial ovarian cancer following optimal debulking surgery (FLORA-5)

This Phase 3 study will compare the safety and efficacy of oregovomab versus placebo, administered in combination with specific cycles of a standard 6-cycle chemotherapy regimen for the treatment of patients with newly diagnosed advanced ovarian cancer who have undergone optimal debulking (surgery that leaves behind no visible cancer or tumors larger than 1 centimeter). Outcome measures will include progression-free survival, overall survival, safety, tolerability, and change in quality of life. Kaiser Permanente Southern California is one of the high-enrolling sites in this trial.

Principal investigator: Devansu Tewari, MD

Participating locations: Los Angeles, Orange County

NCT04498117

A study of enfortumab vedotin alone or with other therapies for treatment of urothelial cancer

This study examined the safety and anticancer activity of an experimental drug, enfortumab vedotin, given intravenously as a monotherapy and in combination with other anticancer therapies as first- and second-line treatments of urothelial cancer. Kaiser Permanente Southern California was one of the high-accrual sites. In April 2023, the U.S. Food and Drug Administration granted accelerated approval to enfortumab vedotin-ejfv with pembrolizumab for patients with locally advanced or metastatic urothelial carcinoma who are not eligible for cisplatin-containing chemotherapy.

Principal investigator: Helen Moon, MD

Participating locations: Baldwin Park, Downey, Los Angeles, Orange County, Riverside County, San Bernardino County, San Diego, South Bay, Ventura County

NCT03288545

An observational research study for cancer patients on immune checkpoint inhibitors

This prospective observational cohort study will investigate racial differences in toxicities and treatment outcomes of cancer patients treated with immune checkpoint inhibitors. The use of this powerful and innovative mode of cancer therapy has increased dramatically over the past 5 years. However, little data has been collected about treatment response among patients of African ancestry. In addition, little is known about the toxicities, treatment patterns, long-term outcomes, and post-treatment quality of life associated with immune checkpoint inhibitors outside the clinical trials setting. This study seeks to address knowledge gaps and answer important clinical questions about racial differences between patients of African ancestry and patients of European ancestry in real-world community oncology settings.

Principal investigator: Ahmed Megahed, MD

Participating locations: Baldwin Park, Downey, Los Angeles, Orange County, Riverside County, San Diego, South Bay, West Los Angeles

NCT05364086

GENERAL

Cardiology

AMPLATZER PFO Occluder post-approval study

This post-approval study seeks to assess the safety and effectiveness of 2 cardiac device systems, the Amplatzer Talisman™ PFO Occlusion System and the Amplatzer PFO Occluder. The device systems are designed to treat people with patent foramen ovale (PFO) – a hole in the heart that doesn't seal after birth – who have had a stroke and are at risk of another. Untreated persistent PFO can lead to stroke. Understanding the safety and effectiveness of this minimally invasive device could potentially improve patient outcomes. In 2023, Kaiser Permanente Los Angeles retained its role as a worldwide leader in enrollment in this trial.

Principal investigator: Somjot S. Brar, MD, MPH

Participating location: Los Angeles

NCT03309332

Clinical trial of atrial fibrillation patients comparing left atrial appendage occlusion therapy to non-vitamin K antagonist oral anticoagulants (CATALYST Trial)

This trial will evaluate the safety and effectiveness of the Amulet LAA Occluder, a device designed to treat patients with non-valvular atrial fibrillation who are at risk of ischemic stroke. The study will compare outcomes for patients who receive the device to those who have been treated with non-vitamin K antagonist oral anticoagulants (NOAC). Results will improve understanding of treatment options for non-valvular atrial fibrillation to decrease risk for stroke for future patients.

Principal investigator: Nigel Gupta, MD

Participating location: Los Angeles

NCT04226547

COVID-19

SUPERNOVA

This study will evaluate the safety, efficacy, and neutralizing activity of an investigational long-acting antibody, AZD3152, when used for pre-exposure protection against COVID-19. Outcomes will be compared to study participants who receive placebo or Evusheld. The study will also evaluate the safety and pharmacokinetics of AZD5156, a drug that combinates ADZ3152 with cilgavimab, a neutralizing human monoclonal antibody directed against the SARS-CoV-2 spoke protein. Importantly, this study focused on immunocompromised individuals and alternative protections against COVID-19. Kaiser Permanente enrolled almost twice the average number enrolled at most sites within 2 months. If found effective this new injection could potentially save thousands of lives from severe COVID-19 infection.

Principal investigator: William J. Towner, MD, FACP, FIDSA

Participating location: Los Angeles

NCT05648110

Infectious disease

An interventional study to evaluate safety, tolerability, and pharmacokinetics of sisunatovir in infants with lower respiratory tract infections caused by RSV

This randomized, placebo-controlled study looks at the efficacy and safety of sisunatovir in pediatric patients with RSV (respiratory syncytial virus) lower respiratory tract infections. There are currently limited treatment options available for RSV, a disease that leads to the death of over 100,000 children a year worldwide. Sisunatovir is a very promising antiviral under development for the disease. Kaiser Permanente Southern California was honored to be chosen for this study, which is the first dosing study in children, and proud to be the first worldwide site to enroll a patient.

Principal investigator: William J. Towner, MD, FACP, FIDSA

Participating location: Los Angeles

NCT06102174

Ophthalmology

Safety and efficacy of ADVM-022 in treatment-experienced patients with neovascular age-related macular degeneration

This study will assess the safety, tolerability, and efficacy of a single intravitreal injection of ADVM-022, a gene therapy, in patients who have had treatment with an anti-vascular endothelial growth factor agent for neovascular (wet) age-related macular degeneration. Unlike other ophthalmic gene therapies that require surgery to administer the therapy under the retina, ADVM-022 is 1-time injection designed to be administered in a physician's office. It offers the potential to reduce the burden of frequent injections, optimize patient compliance, and improve outcomes for patients with wet age-related macular degeneration.

Principal investigator: Vivienne S. Hau, MD, PhD

Participating location: Riverside County

NCT05536973

Nephrology

Study of efficacy and safety of LNP023 in primary IgA nephropathy patients (APPLAUSE-IgAN)

This Phase 3 trial will evaluate the efficacy and safety of ipatocopan (LNP023), an investigational oral treatment, compared to placebo in reducing proteinuria and slowing disease progression for patients with primary IgA nephropathy. In October 2023, the drug manufacturer announced top-line results from the prespecified interim analysis from this study. According to the announcement, the drug demonstrated superiority to placebo in reducing proteinuria and provided a clinically meaningful and highly statistically significant proteinuria reduction on top of supportive care in patients with IgA nephropathy. The study continues to evaluate the drug's ability to slow disease progression. Kaiser Permanente San Diego was the highest enrolling site in the United States for this trial as of the end of 2023.

Principal investigator: Hui Xue, MD, MMSc

Participating location: San Diego

NCT04578834

Neurology

HEALEY ALS Platform Trial

This trial is a perpetual, multicenter, multiregimen trial to evaluate the safety and efficacy of multiple investigational products to treat ALS. Currently there are limited treatment options for ALS, also known as Lou Gehrig's disease. Recent scientific advancements have contributed to a growing pipeline of potential therapeutics. This is the first ALS platform trial, where multiple drugs are tested at the same time, using specialized statistical tools. It has the potential to accelerate the path to new ALS therapies by testing multiple treatments at once, reducing the cost of research and trial time while increasing patient participation.

Principal investigator: Abel Wu, MD

Participating location: Los Angeles

NCT04297683

Neurology - Vascular (Stroke)

Determinants of incident stroke cognitive outcomes and vascular effects on recovery (DISCOVERY)

This multicenter observational study will examine what factors contribute to changes in cognitive abilities in patients who experienced a stroke. Patients hospitalized with acute-onset arterial ischemic stroke, ICH, or aneurysmal subarachnoid hemorrhage, and no history of dementia will be enrolled within 6 weeks of stroke onset. All patients will undergo baseline screening for evidence of pre-stroke dementia. Importantly, this study will consider race and ethnicity in post-stroke cognitive impairment and dementia (PSCID) and address key disparities in rates of both stroke and dementia. Findings will improve understanding of factors that modulate PSCID risk in diverse populations, which is critical to developing risk prediction tools, targeting interventions to prevent and treat PSCID, and informing the design of future clinical trials. Kaiser Permanente Southern California has been recognized as being a top enroller in this trial and is the site with the most Hispanic/Latino enrollments.

Principal investigators: Navdeep Sangha, MD, and Pamela Cheng, DO

Participating location: Los Angeles

NCT04916210

Recombinant Factor Vlla for acute hemorrhagic stroke administered at earliest time (FASTEST)

This Phase 3 trial will assess whether the experimental drug recombinant Factor VIIa (rFVIIA), a protein that our body makes, can be used to decrease bleeding in the brain of patients who suffer sudden bleeding in the brain, also called intracerebral hemorrhage or ICH. Participants in the clinical trial receive either the experimental drug rFVIIa or a placebo, and the best standard medical care. Objectives include establishing the time window for first treatment of acute spontaneous ICH and the subgroup of patients that are most likely to benefit from the treatment. This is Kaiser Permanente Southern California's first StrokeNet study with operations set up to support fully remote enrollments.

Principal investigator: Navdeep Sangha, MD

Participating locations: Baldwin Park, Los Angeles, Riverside County, San Bernardino County

NCT03496883

Urogynecology

Reduced-dose BOTOX for urgency incontinence among elder females (RELIEF)

This trial studies the treatment of urgency urinary incontinence with BOTOX specifically among older women. It will compare outcomes for participants who receive a reduced dose of BOTOX injection in the bladder to those who receive the standard dose. This study includes women ages 70 years and older, a group that has been less well represented in previous studies and may have a higher degree of frailty and comorbidities. The study will examine changes in symptom-specific quality of life over time; patient-reported and clinical outcome measures; qualitative experiences of treatment and adverse events based on focused interviews before and after injection; and economic burden due to use of incontinence products.

Principal investigator: Shawn A. Menefee, MD

Participating location: San Diego

NCT05512039

Vascular surgery

PASCAL Transcatheter Valve Repair System Pivotal Clinical Trial (CLASP II TR)

This Phase 3 device trial will assess the safety and effectiveness of the PASCAL Transcatheter Mitral Valve Repair System in patients with symptomatic severe tricuspid regurgitation who are not suitable for open heart surgery. As of the end of 2023, there were no transcatheter tricuspid repair devices in the United States. Data from compassionate-use experience with the Pascal System showed high procedural success, acceptable safety, and significant clinical improvement in patients with challenging tricuspid anatomy and severe tricuspid regurgitation. The trial will compare safety and effectiveness outcomes of participants who receive the device implant as well as optimal medical therapy to outcomes of participants who only receive optimal medical therapy.

Principal investigator: Bahram Khadivi, MD

Participating location: San Diego

NCT04097145

Care Improvement Research Team projects

The Care Improvement Research Team works to build capacity for research embedded in clinical practice. CIRT aims to improve access, quality, and affordability of care delivery and the health of patients, families, and communities.

The CIRT Steering Committee works with Southern California Permanente Medical Group leaders to select and fund a handful of projects based on their potential to yield findings that will improve care and outcomes for our patients. Project teams bring together researchers, clinicians, and operational leaders to contribute varied expertise in solving real-world clinical problems.

The following CIRT projects were initiated or continued during 2023.

New projects

Evaluation of a remote blood pressure monitoring program for hypertension management

Over 963,000 patients in Kaiser Permanente Southern California have diagnosed hypertension. Nearly one-fourth have uncontrolled blood pressure. Remote blood pressure monitoring may provide benefits both to patients with hypertension and the clinicians who treat them. There are, however, barriers to home blood pressure measurement and evidence of whether blood pressure control can be sustained is lacking. This study aimed to evaluate the KPSC remote blood pressure monitoring program to identify opportunities to improve the effectiveness, acceptability, appropriateness, and scalability of the program, thus improving hypertension management in the KPSC population. Researchers found that mean home systolic and diastolic blood pressure were significantly reduced in a 12-month period. Patient satisfaction and acceptance levels were high, though patient engagement could be improved. Cost-effectiveness analysis of the program shows a small cost increase but positive effects in terms of blood pressure reduction compared to usual care.

Principal investigators: Kristi Reynolds, PhD, MPH, and Teresa N. Harrison, SM

Therapeutic intensification for uncontrolled hypertension

Nearly one-fourth of patients in Kaiser Permanente Southern California who have been diagnosed with hypertension have uncontrolled blood pressure. Therapeutic inertia has been identified as a key barrier to blood pressure control. Clinicians often fail to intensify therapy when blood pressure goals

are not met. Researchers aimed to quantify the rate of treatment intensification and identify barriers and facilitators to intensification. They found that KPSC clinicians intensify treatment at 1 out of 3 or 4 visits for patients with uncontrolled blood pressure. The rate was higher in blood pressure clinics with team-based care than it was in regular office visits. Treatment intensification with single-pill combinations was associated with a greater reduction in blood pressure than using separate pills or no therapeutic intensification. Barriers to treatment intensification included patient side effects, non-adherence to treatment, hesitancy to add medications, and comorbidities. These findings suggest that targeted interventions to address barriers to treatment intensification are warranted.

Principal investigator: Jaejin An, PhD

Improving computerized clinical decision support alerts

Best Practice Advisories within electronic health record systems provide clinical decision support and reminders during patient encounters. As the number of BPAs increases, however, their net value begins to decrease. Alert fatigue can trigger clinician annoyance and a tendency to dismiss rather than read and act on the considerable number of reminders fired during a typical patient encounter. Kaiser Permanente Southern California has 891 active BPAs, including 748 that must be addressed before clinicians can continue to use the EHR. This project sought to develop a novel approach to distinguish high- versus low-value BPAs and identify BPAs suitable for elimination. The researchers developed and applied an innovative clinician "reaction time" measure for a sample of BPAs and identified key features of BPAs associated with greater or lesser reaction times and burden. Results will help guide ongoing work by health IT leaders to redesign or eliminate low-value alerts and offer guidance to funders and leaders when proposing and implementing new alerts.

Principal investigators: Brian Mittman, PhD, and Bing Han, PhD

Increasing pediatricians' provision of digital self-care tools to adolescents with mild-to-moderate depressive symptoms

Poor mental health among adolescents is a significant public health concern. Many adolescents experiencing distress do not receive treatment. Digital mental health tools are available to members, but they are not routinely offered to adolescents. Researchers evaluated the feasibility of pediatric clinicians offering a digital self-care tool, called Woebot, to adolescents ages 13 to 17 who had mild-to-moderate depressive symptoms. Clinicians from Antelope Valley, Orange County, Los Angeles, and San Diego participated. From August to December 2023, 45 Woebot offers were documented for adolescents ages 13 to 17 at well-child visits and physicals. Among youth with depressive screening indicating mild-to-moderate depression, 17 (41%) were offered Woebot. Overall, 24 adolescents (53%) accepted the Woebot referral offered by their clinician; however, only 7 (15%) completed steps to get the download code. Clinicians appreciated

having Woebot as a treatment option and reported the workflow was feasible. Challenges included few adolescents meeting eligibility, limited time at the encounter, and perceived lack of interest. Well-child visits and physicals may be an appropriate setting to offer digital self-care tools to adolescents with emotional distress symptoms, but strategies are needed to support youth uptake and to reduce clinician barriers to offering digital tools.

Principal investigator: Davida Becker, PhD, SM

Systematic evaluation of Kaiser Permanente Southern California peer-to-peer support programs

The Kaiser Permanente Peer Support and Mentors Program is a voluntary program that matches Kaiser Permanente members who have been trained to provide support and practical tips to other members who are going through treatment for breast cancer. Though the program was implemented in Kaiser Permanente Southern California medical centers in 2013, it had never been evaluated. A workgroup that included clinical and operational partners developed a rigorous evaluation plan. They found that there is low awareness of the program, which offers a Kaiser Permanente-centric, personalized option for support during a patient's journey with breast cancer. They further found that the burden of program implementation is on medical center clinicians and staff and that support for program implementation is limited. The workgroup recommended a more centralized approach, with program administration and management support at the regional level.

Principal investigators: Thearis Osuji, MPH, and Kerry Litman, MD

Effect of a pharmacist-led educational intervention on benzodiazepine and non-benzodiazepine sedative-hypnotic drug prescribing among ambulatory adult patients

Chronic use of benzodiazepines and non-benzodiazepine sedative-hypnotics put patients at risk for adverse events like falls, addiction, and dementia. Kaiser Permanente Southern California launched an initiative in 2019 to reduce prescribing of these drugs. Researchers found that the initiative was associated with a significant decline in patients newly started on the drugs as well as a reduction in the number of patients on chronic prescriptions. However, they also found that the program impact may wane over time and that the impact may be differential based on age, gender, race, and ethnicity. Important implementation strategies included providing consistent clinician-focused education along with availability of alternate medications, using quarterly reports to track prescribing, and supporting tapering through team-based management. Access and staff shortages were barriers to success. New strategies that may aid in sustaining the initiative's impact include patient-focused education and increased involvement of pharmacists in tapering.

Principal investigators: Patricia Gray, PharmD, and Steven Steinberg, MD

Immediate post-placental intrauterine device insertion: Comparative analysis of outcome measures including complication rates and effects on reproductive life planning

Immediate post-placental intrauterine device (IPP-IUD) insertion is a relatively new standard of care for providing a highly reliable contraceptive method immediately after delivery. The American College of Obstetricians and Gynecologists recommends IPP-IUD to reduce short interpregnancy intervals (less than 18 months), which are associated with increased risks for adverse pregnancy outcomes. Comparative analysis of complications between IPP-IUD and interval postpartum IUD insertion showed that although IPP-IUD insertion is associated with higher rate of IUD expulsion, it has a lower rate of IUD perforation. The highest rates of IUD perforation were seen with delayed interval IUD insertion at 4.1 to 6.0 weeks after delivery, with an incidence of 1%. Caution is recommended for IUD insertions during this interval. In addition, significantly lower rates of short inter-pregnancy intervals were seen in members who initiated any type of contraception within 3 months from delivery when compared to no contraception initiation in the same period. IUD and subdermal implant are superior to short-acting contraception in preventing short inter-pregnancy intervals. Providing safe and effective birth control during the first 3 months after delivery can reduce short inter-pregnancy interval rates, and in return decrease rates of preterm delivery and NICU admissions.

Principal investigator: Asma Saraj, MD

Continuations

Prevention of venous thromboembolism in abdominal cancer surgery

Venous thromboembolism (VTE) is a frequent and potentially serious but preventable complication following major abdominal surgery for cancer. This study evaluated the effect of interventions to increase extended duration thromboprophylaxis in patients discharged after high-risk abdominal cancer surgery. Interventions included informal provider notification and education and implementation of a new standardized discharge order set to increase the use of post-discharge prophylaxis. The combination of these interventions has resulted in a 74% improvement in the use of post-discharge prophylaxis and a 53% reduction in VTE among those who received post-discharge prophylaxis compared with those who did not receive it.

Principal investigator: Michael K. Gould, MD, MS

Enhanced implementation of lung cancer screening

Low-dose computed tomography (LDCT) screening has been shown to reduce lung cancer mortality by at least 20% in high-risk smokers, but a variety of factors have hindered uptake in the target population. This project, which is a collaboration between the research team and the SCPMG Regional Lung Cancer Screening Steering Committee, aims to improve the effectiveness and efficiency of screening of Kaiser Permanente Southern California members who smoke or previously smoked. It seeks to reduce inappropriate screening of people who are at low risk, reduce missing information about smoking habits, and expand the reach of screening to a larger percentage of the target population. Multiple

interventions directed at members and physicians, including best practice alerts, smart sets, education tools, and a novel e-visit, are underway. In 2024, the team will launch a pilot study of outreach and technology-enhanced patient engagement in South Bay.

Principal investigator: Michael K. Gould, MD, MS

Implementing systemic depression screening in medical oncology

Depression screening in oncology is recommended by the American Society of Clinical Oncology and others. This implementation study drew on strategies developed in an earlier cluster randomized pragmatic trial to successfully implement depression screening at medical oncology departments across 15 Kaiser Permanente Southern California medical centers. Between July 2021 and October 2023, about 23,000 members diagnosed with cancer had been screened for depression. Of those screened in 2023, 16% scored in a range requiring referral (moderate or severe depression). Patients who scored at the lower end of the range were offered information on how to access mental health and wellness services via Kaiser Permanente's patient portal (kp.org) as well as through community-based services. Screening by medical center over time is variable and dependent on local resources. It also requires ongoing support and training. In January 2024, the CIRT team transitioned oversight of the screening initiative to the regional oncology team.

Principal investigator: Erin E. Hahn, PhD, MPH

The initiation of guideline-directed medical therapy during hospitalization for congestive heart failure patients and its impact on post-discharge outcomes

Guideline-directed medical therapy (GDMT) and other interventions have been shown to improve outcomes for patients with heart failure but have also been reported to be underutilized. This study evaluated whether GDMT use before and after hospitalization was effective and safe. They found that early use of spironolactone – a potassium-sparing diuretic – at discharge was not associated with improved short-term outcomes, which may have been a result of crossover between the early and delayed/no treatment groups. On the other hand,

coronary artery disease (CAD) testing was associated with reduced readmission and mortality. Researchers also found sodium-glucose transport protein 2 inhibitors – a class of oral prescription medication first developed for glycemic control that is recommended for patients with heart failure – to be safe in acute heart failure hospitalizations. These findings have implications for clinical decision-making for a population with significant morbidity and mortality.

Principal investigator: Cheng-Wei Huang, MD

Implementation and evaluation of an enhanced adverse childhood experiences (ACES) screening and referral system in pediatric primary care

There is a clear link between adverse childhood experiences (ACEs) and poor physical and mental health outcomes over a person's lifespan. In California, screening in pediatric primary care is recommended to combat these negative sequalae. This study examined the impact of ACEs screening on the rate of referrals and visits to social work and behavioral health. The results showed that there were no differences in rates of referral to social work or visits to behavioral health for clinics that had recently implemented the ACE screening compared with those who had been screening for more than a year. This demonstrates the longer-term feasibility of the ACEs screening program and shows that sustained rates are manageable for providers.

Principal investigator: Sonya Negriff, PhD

Early insights on implementation of Medi-Cal medically tailored meal program

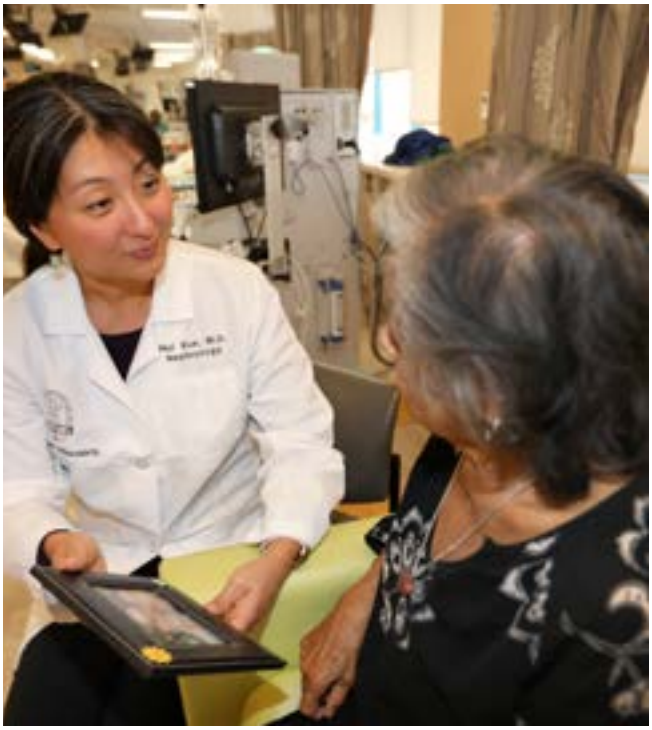
In 2022, the state of California launched a new initiative, CalAIM, to provide more coordinated, person-centered, and equitable care for people enrolled in Medi-Cal. All managed Medi-Cal plans, including Kaiser Permanente, are required to provide a set of community supports, including medically tailored meals for eligible enrollees. The focus of Phase I of this project is to glean early insights into Kaiser Permanente Southern California's medically tailored meal program for patients at high risk for malnutrition. Outreach for the program is being conducted equitably across key socio-demographic subgroups and across nearly all medical centers. Researchers found that 1 in 2 patients dropped out of the program after enrollment. Factors included high mortality rates and likely dissatisfaction with meals. Of the patients who completed a satisfaction survey, 2 in 3 enrollees reported they were highly satisfied with the meals. Researchers recommended working with the vendor on how to improve the taste, quality, and variety of meals within the program's cost constraints and continue the evaluation pending program changes in 2024.

Principal investigator: Huong Q. Nguyen, PhD, RN

Prevalence, trend, care delivery, and disparity in mental health conditions in children, adolescents, and young adults among Kaiser Permanente Southern California members

Depression is a serious mental health disorder affecting millions of children and adolescents. To address this issue, Kaiser Permanente Southern California has implemented depression screening at standard well-child visits. This study sought to understand rates of depression and anxiety in children, teens, and young adults up to age 22 within KPSC between 2017 and 2021. Researchers found that incidence of depression diagnoses increased by 55% while prevalence increased by 60%. Incidence of anxiety without depression increased by 31% while prevalence increased by 35%. Increases in rates were higher during the COVID-19 pandemic (2020–2021) than pre-pandemic, except for depression incidence. Rates increased across all subgroups, with some having higher rates of increase. Results highlight the need to increase efforts to address mental health, especially for young people and high-risk subgroups.

Principal investigator: Anny H. Xiang, PhD, MS



Observed role of cooling on hemodynamics in inpatient dialysis (ORCHID)

Cardiovascular morbidity and mortality rates are 10 to 30 times higher for patients receiving hemodialysis. Intradialytic hypotension (IDH) occurs in 20% to 40% of dialysis treatments, potentially impairing perfusion in major organs. The effect of cooling dialysate – the fluid used during dialysis – to less than 36.5 degrees Celsius is unknown in hospitalized patients, who experience IDH more frequently than in outpatient settings. In 2022, 6 Kaiser Permanente Southern California medical centers participated in a 6-month prospective, nonrandomized study. Each hospital served as its own control with sites assigned either the standard 37.0 degrees Celsius or the cooler 35.5 degrees Celsius for the first 3 months, then switching. Researchers found that lower starting dialysate temperature was associated with a 16% decrease in risk of IDH. Patients who experienced IDH were at twice the risk of death and 3 times higher risk of hospice referral. They were also at 68% higher risk of hospital readmission and spent more days in the hospital and fewer at home. The findings suggest that reducing the temperature of dialysate during inpatient hemodialysis may lower the risk of IDH in acutely ill hospitalized patients, thereby reducing risk of death, readmission, longer hospitalization, and fewer days at home.

Principal investigator: Hui Xue, MD, MMSc

Regional Research Committee–funded projects

The Regional Research Committee awards funds from Kaiser Permanente's Community Health program for research projects led by clinicians and other health care professionals at Kaiser Permanente Southern California.

These projects address real-world clinical questions and have the potential to point to smarter ways to prevent and treat common health conditions. The committee awarded funds to the following studies in 2023.

Traditional grant studies

Cardiology

Association of rosuvastatin use with risk of kidney injury

Principal investigator: Serena Ghanshani, MD (fellow)

Los Angeles

Family Medicine

Descriptive retrospective case-control study on long-COVID patients in Kaiser Permanente Southern California from September 1, 2020, to June 30, 2023, and COVID vaccination and treatment status

Principal investigator: Diane Y. Jerng, MD

Orange County

Head and Neck Surgery

Outcomes after cochlear implantation for single-sided deafness and asymmetric hearing loss

Principal investigator: Syed Fahsan, MD, FACS

Orange County

Internal Medicine

Occupational therapy-led intensive lifestyle intervention clinic: A retrospective observational cohort study

Principal investigator: Ramez Ethnasios, MD

West Los Angeles

Obstetrics-Gynecology

A comparative analysis of 30-day follow-up rates, inpatient admissions, and emergency room visits following virtual visits compared to face-to-face visits for urinary tract infections

Principal investigator: Ghanshyam S. Yadav, MD (fellow)

San Diego

Long-term reoperation risk after augmented versus native tissue level I transvaginal prolapse repair

Principal investigator: Nemi Shah, MD (fellow)

San Diego

Ophthalmology

Disparities in cataract surgery prior to and during the era of COVID

Principal investigator: Brian L. Lee, MD

West Los Angeles

Prognostic socioeconomic factors in the treatment and management of rhegmatogenous retinal detachments

Principal investigator: Vivienne S. Hau, MD, PhD

Riverside

Orthopedic Surgery

Effect of adverse childhood events on outcomes following arthroscopic hip surgery

Principal investigator: Brett Shore, MD

Panorama City

Pediatrics

Pediatric depression and suicide risk screening outcomes during COVID-19

Principal investigator: Yvonne Tsai, MD

Orange County

Use of antibiotics in infancy and its association with childhood obesity

Principal investigator: Zackary W. Taylor, MD

Los Angeles

Psychiatry

New mental health diagnosis and mental health crisis service utilization associated with bariatric surgery

Principal investigator: Hilary Bennett, MD

San Bernardino County

Vascular Surgery

Carotid disease treatment modality and effect on post-operative hospital length of stay

Principal investigator: Andrew K. Son, MD, FACS, RPVI

Riverside

Rapid Cycle Research Program

Anesthesiology

Safety of GLP-1 receptor agonists in patients undergoing sedation for endoscopic gastrointestinal procedures in the ambulatory setting

Principal investigator: Chunyuan Qiu, MD, MS

Baldwin Park

Cardiology

The diagnostic and prognostic utility of cardiac testing in kidney and liver transplantation candidates

Principal investigator: Columbus Batiste, MD

Riverside

Complete Care Management

Effectiveness of a population-based care model for management of hyperglycemia in patients with type 2 diabetes mellitus

Principal investigator: Minyong Kim, MPH

Los Angeles

Gastroenterology

Safety of uninterrupted anticoagulation in the setting of routine colonoscopy

Principal investigator: Andrew Giap, MD

Orange County

RRC-GME Research Program Development Grant

Geriatrics, Palliative Care, Continuing Care

Outcomes of patients with dementia undergoing high-risk surgical procedures

Principal investigator: Aleksandr G. Lewicki, MD

Los Angeles

Hospital Medicine

Uptake and variation in HCV screening before and after universal screening recommendations and electronic health record prompts

Principal investigator: Cheng-Wei Huang, MD

Los Angeles

Radiation Oncology

Social vulnerability index as a way to predict cancer outcomes and identify areas to improve delivery of care in the Southern California Kaiser Permanente health system

Principal investigator: H. Cindy Ko, MD

Los Angeles

Urology

Are there socioeconomic disparities in reconstructive surgery for pelvic organ prolapse in a managed care setting?

Principal investigator: Christopher Tenggardjaja, MD

Los Angeles

LEADERSHIP & INVESTIGATORS

Scientific Leadership

Benjamin Broder, MD, PhD, interim senior director of research

Huong Q. Nguyen, PhD, RN, interim scientific director, Health Services Research & Implementation Science

Kristi Reynolds, PhD, MPH, scientific director, Epidemiologic Research

William J. Towner, MD, FACP, FIDSA, physician director, Clinical Trials

Bechien U. Wu, MD, MPH, physician director, Clinician Research

Anny H. Xiang, PhD, MS, scientific director, Biostatistics Research

Deborah Rohm Young, PhD, MBA, scientific director, Behavioral Research

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Postdoctoral research fellow

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*Dr. Carter left Kaiser Permanente in July 2023

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Brian S. Mittman, PhD

*Dr. Brown is also a practicing urogynecologist with SCPMG.

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Reina Haque, PhD, MPH
Rulin Hechter, MD, PhD, MS
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Sara Y. Tartof, PhD, MPH
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Jennifer Ku, PhD, MPH
Nana Mensah, PhD, MPH
Amrita Mukherjee, PhD, MPH
Emily Rayens, PhD, MPH
Adovich Rivera, MD, PhD

Epidemic Intelligence Service officer

Rudy A. Patrick, PhD, MPH

*Dr. Florea left Kaiser Permanente in October 2023

Division of Clinician Research

Physician director and chair of Regional Research Committee

Bechien U. Wu, MD, MPH

Area research chairs and vice chairs

Antelope Valley

Jonathan Truong, MD, area research chair
David Bronstein, MD, vice area research chair

Baldwin Park

Gaurav Khanna, MD, area research chair
Bobeck S. Modjtahedi, MD, vice area research chair

Downey

Eugene A. Chu, MD, area research chair
Rajeev Attam, MD, vice area research chair

Los Angeles

Mingsum Lee, MD, area research chair
Javed Sheikh, MD, vice area research chair

Orange County

Emily L. Whitcomb, MD, MAS, area research chair
Ali Ghobadi, MD, vice area research chair

Panorama City

Shireen Fatemi, MD, area research chair
Ahmed Dehal, MD, vice area research chair

Regional Laboratory

Darryl Palmer-Toy, MD, PhD, area research chair

Research & Evaluation

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Riverside

Rachid A. Elkoustaf, MD, area research chair

Vivienne S. Hau, MD, vice area research chair

San Bernardino County

Conrad Liang, MD, PhD, area research chair

Steve S. Lee, DO, vice area research chair

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Shawn A. Menefee, MD, area research chair

South Bay

David S. Cohen, MD, area research chair
Paulina N. Tran, DO, vice area research chair

West Los Angeles/Kern County

Michael J. Fassett, MD, area research chair
Daniel T. Lang, MD, vice area research chair

Woodland Hills

Armen Aboulian, MD, area research chair
Monique George, MD, vice area research chair

Clinician Investigators

Current

Fu-Sheng Chou, MD, PhD (2023–2025)

Ahmed Dehal, MD, MPH, FACS, FSSO, FRCS (2023–2025)

Dennis Hwang, MD (2019–2021, 2024–2026)

Cheng-Wei Huang, MD (2024–2026)

Mingsum Lee, MD, MPH (2019–2021, 2021–2023)

Chileshe Nkonde-Price, MD, MS, FACC (2021–2023)

Previous appointees

Raymond Chen, MD, DPhil (2016–2018)

Kimberly Ferrante, MD, MAS (2019–2021)

Bobeck S. Modjtahedi, MD (2018–2020, 2020–2022)

Casey K. Ng, MD (2017–2019)

Chunyuan Qiu, MD, MS (2018–2020, 2020–2022)

Joan J. Ryoo, MD, MSHS (2018–2020)

Navdeep Sangha, MD (2017–2019)

John J. Sim, MD (2016–2018)

Devansu Tewari, MD, MBA (2016–2018)

Emily L. Whitcomb, MD, MAS (2017–2019)

Bechien U. Wu, MD, MPH (2017–2019)

Hui Xue, MD, MMSc (2016–2018, 2018–2020)

Division of Clinical Trials Research

Physician Director

William J. Towner, MD, FACP, FIDSA, Infectious Diseases, Los Angeles

Principal investigators by therapeutic area

Bone Marrow Transplant

Ricardo T. Spielberger, MD, Los Angeles

Cardiology

Somjot S. Brar, MD, MPH, Los Angeles

Jeffrey Cavendish, MD, San Diego

Nigel Gupta, MD, Los Angeles

Jonathan Neyer, MD, Los Angeles

COVID-19

Adam Schwartz, MD, MS, San Diego

Dermatology

Kim Chong, MD, Los Angeles

Gastroenterology

Gareth S. Dulai, MD, Downey

Kevin T. Kao, MD, Downey

Bechien U. Wu, MD, MPH, Los Angeles

Genetics and Genomics

Divya Vats, MD, Los Angeles

Gynecologic Oncology

Scott E. Lentz, MD, FACS, Los Angeles

Devansu Tewari, MD, MBA, Orange County

Hematology Oncology

Ashraf R. Aziz, MD, Orange County
Gary L. Buchshacher Jr., MD, PhD, Los Angeles
Lara Durna, MD, MS, South Bay
Eric McGary, MD, PhD, MPH, Los Angeles
Helen Moon, MD, Riverside

Hepatology

Mamie Dong, MD, Hepatology, San Diego
Amandeep Sahota, MD, Los Angeles

Infectious Diseases

William J. Towner, MD, FACP, FIDSA, Los Angeles
Jonathan Truong, MD, Antelope Valley

Nephrology

John J. Sim, MD, Los Angeles
Hui Xue, MD, MSc, San Diego

Neurology

Abel Wu, MD, Los Angeles

Neurology-Oncology

Richard Green, MD, Los Angeles

Neurology-Vascular (Stroke)

Zahra A. Ajani, MD, Los Angeles
Pamela Cheng, DO, Los Angeles
William Neil, MD, San Diego
Navdeep Sangha, MD, Los Angeles

Neurosurgery

Harsimran S. Brara, MD, FAANS, Los Angeles
Vaninder Chhabra, MD, San Bernardino County

Otolaryngology/Head and Neck Surgery

Rohit Garg, MD, MBA, Orange County

Ophthalmology

Michelle Britt, MD, Baldwin Park
Vivienne S. Hau, MD, PhD, Riverside
Damien Rodger, MD, PhD, Los Angeles
Neil M. Vyas, MD, Panorama City
Kapil M. Sampat, DO, Riverside

Orthopedics

Jeffrey I. Kessler, MD, Los Angeles

Pediatric Oncology

Robert M. Cooper, MD, Los Angeles

Pediatric Pulmonology

Muhammad Saeed, MD, Los Angeles

Pulmonary

Aung Htoo, MD, Kern County
Kenneth Wei, MD, Los Angeles

Radiation Oncology

Michael R. Girvigian, MD, DABR, Los Angeles

Radiology–Neuroradiology

Lei Feng, MD, PhD, Los Angeles
Conrad Liang, MD, PhD, San Bernardino County
Mazen Noufal, MD, San Bernardino County

Rheumatology

Steve S. Lee, DO, San Bernardino County
Andrew Nguyen, MD, Orange County

Sleep Medicine

Prasanth Manthena, MD, Los Angeles

Surgical Oncology

Vikram Attaluri, MD, FACS, FASCRS, Los Angeles
Elisabeth McLemore, MD, FACS, Los Angeles

Urogynecology

Kimberly Ferrante, MD, MAS, San Diego
Keisha Dyer, MD, San Diego
Shawn A. Menefee, MD, San Diego
John N. Nguyen, MD, Downey
Christopher Tenggardjaja, MD, Los Angeles
Emily L. Whitcomb, MD, MAS, Orange County

Vascular Surgery

Catherine Chang, MD, San Diego
Linda Chun, MD, Los Angeles
Edward Plecha, MD, San Diego

Affiliated Researchers

Kaiser Permanente affiliated investigators, including active and retired SCPMG partners

Bradley Ackerson, MD
David Braun, MD
Jeffrey Brettler, MD
Sirichai Chayasirisobhon, MD, FAAN
Michael K. Gould, MD, MS
Suresh Gurbani, MD
David Harmon, MD
Michael Kanter, MD
Annette M. Langer-Gould, MD, PhD, MS
Neal Lonky, MD
Eric Macy, MD
Lisa Nyberg, MD, MPH, MS
Jonathan Polikoff, MD
David Sacks, MD
Michael Schatz, MD, MS
Joanne E. Schottinger, MD
Warren Shapiro, MD
Adam L. Sharp, MD, MSc
Lester Thompson, MD
Robert S. Zeiger, MD, PhD

Investigators from other institutions

Soo Borson, MD
Katia Bruxvoort, PhD, MPH
Kristen Choi, PhD, MS, RN
Paul Muntner, PhD

Additional photo captions

Cover:

In "6", top right, clockwise: Dr. Vincent Felitti, Dr. Samuel Sapin and unknown patient, Dr. Irving Rasgon, Dr. Sidney R. Garfield, and Dr. Raymond Kay

In "0", top right, clockwise: Dr. John Sim and Dr. Brian Mittman, Kneena Wolff and Dr. Michael Fassett, Dr. Darios Getahun, Dr. David Cheng, Dr. Huong Nguyen, Melissa Parra, Dr. David Sacks, Dr. Deborah Rohm Young and Dr. Corinna Koebnick

Page 6: Dr. Samuel Sapin and unknown patient

Page 26: (Top photo) Dr. Kristi Reynolds and Teresa Harrison
(Middle photo) Dr. John Sim
(Bottom photo) Dr. Michael K. Gould

Page 27: (Top photo) Dr. Huong Nguyen and Augusto Cam
(Middle photo) Andre Ahuja
(Bottom photo) Dr. Navdeep Sangha

Page 28: (Top photo) Dr. Benjamin Broder and Marilyn Owsley
(Middle photo) Annie Chen, Miki Nguyen, Dr. Michael Aragones, Russell McMillian, Dr. Tiffany Yuan, and Laura Dilanchian
(Bottom photo) Fariba Kianmajd, Laura Dilanchian, Dr. Michael Aragones, and Mitchell Tran

Page 29: (Top photo) Dr. David Cheng
(Middle photo) Dr. Sara Tartof, Dr. Debbie Malden, and Sylvia Kim
(Bottom photo) Dr. Titilola Labisi, Dr. John Sim, Dr. Kristi Reynolds, and Dr. Gary Chien

Page 30: (Clockwise from top left) Drs. Erin and Stephen Shih, and Avery and Aiden Shih

Page 31: (Top photo) Dr. Sara Tartof and Dr. Hung Fu Tseng
(Middle photo) Dr. Benjamin Broder, Dr. William Towner, and Dr. Gary Chien
(Bottom photo) Jacques Roussel II and Dr. Annette Langer-Gould

Page 32: (Top photo) Vanessa Audea and Dr. Conrad Liang
(Second photo) Front row: Dr. Hui Zhou, Cheryl Carlson, Dr. Jaejin An, Dr. Kristi Reynolds, Qiaoling Chen, Stephanie Tovar, and Dr. Wansu Chen.
Back row: Matt Pawlik, Oscar Boado, Dr. Matthew Mefford, Mercedes Munis, Harp Takhar, and Dr. Jiaxiao Shi
(Third photo) Dr. Sirichai Chayasirisobhon, Dr. Nancy Gin, and Dr. Bechien Wu
(Fourth photo) Dr. Chileshe Nkonde-Price and Ifat Castro Sharabi

Page 33: (Top photo) Dr. Deborah Rohm Young, Dr. Anny Xiang, Dr. Huong Nguyen, and Dr. Kristi Reynolds
(Second photo) Front row: Dr. Nancy Gin, Dr. Benjamin Broder, Dr. Ramin Davidoff, Kim Kaiser, Dr. Greg Kelman, and Dr. Khang Nguyen. Back row: Dr. Huong Nguyen, Dr. William Towner, Nicole Lorey, Dr. Giselle Willick, Dr. Kristi Reynolds, Trish Lopez, Dr. Bechien Wu, Kelvin Kelley, Annie Chen, Dr. Anny Xiang, and Allan Slatkin
(Third photo) Dr. Bechien Wu and Dr. Conrad Liang
(Fourth photo) Dr. Michael Fassett

Page 34: Front row: Dr. Bechien Wu, Kim Kaiser, Dr. Benjamin Broder, Dr. Hai Linh Kerrigan, Dr. Anny Xiang.
Back row: Dr. Kristi Reynolds, Dr. William Towner, Kelvin Kelley, Cristine Denver, Dr. Huong Nguyen, Allan Slatkin, and Annie Chen

Page 36: Dr. Mingsum Lee and Dr. Jaejin An

Page 38: Dr. Hui Zhou, Dr. Margo Sidell, Dr. Rulin Hechter, and Dr. Sonya Negriff

Page 40: Dr. Maria Fe Bellen Villosis and Dr. David Braun

Page 41: Dr. John Sim and Dr. Karen Coleman

Page 42: Dr. Claudia Nau

Page 43: Julia Tubert, Dr. Hung Fu Tseng, Dr. Jennifer Ku, Dr. Ana Florea, Lina Sy, Dr. Bradley Ackerson, Dr. Lei Qian, and Gina Lee

Page 44: Dr. Reina Haque

Page 45: Mayra Martinez, Ting Chow, Dr. Margo Sidell, and Dr. Anny Xiang

Page 46: Dr. Nancy Gin

Page 47: Dr. Sara Tartof

Page 49: Dr. Eric McGary, Dr. Gary Buchschacher, Dr. Devansu Tewari, Dr. Helen Moon, and Dr. Ricardo Spielberger

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Page 54: Dr. Navdeep Sangha

Page 55: Dr. Gary Chien, Teresa Harrison, and Jeff Slezak

Page 56: Dr. Rulin Hechter and Dr. Steven Steinberg

Page 58: Dr. Bruno Lewin, Dr. Matthew Mefford, Jessica Vallejo, Angel Alem, Dr. Hui Zhou, Thearis Osuji, Dr. Bing Han, Dr. Huong Nguyen, Dr. Ernest Shen, In-Lu Amy Liu, Dr. Stacy Park, Dr. Benjamin Broder, Natalie Firmeza, and Dr. Claudia Nau

Page 59: Dr. Hui Xue and Charlene Patino

Page 61: Dr. Cheng-Wei Huang

Vision

The Department of Research & Evaluation has an integral role in the success of Kaiser Permanente Southern California by conducting high-quality, innovative translational research that benefits the health of its members and the communities from which they come.

Mission

The mission of the Department of Research & Evaluation is to initiate and conduct high-quality, public-sector health services, epidemiologic, behavioral, and clinical research that has a demonstrable positive impact on the health and well-being of Kaiser Permanente Southern California members and the general population.

Credits

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