

For 50 years, the Division of Research has been a central component in Kaiser Permanente's commitment to be a learning organization, dedicated to understanding and improving the health of Kaiser Permanente members and the communities we serve. Through the decades, we've sustained our commitment to the science of population health and stretched in new directions as well.

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DIVISION OF RESEARCH

2010 Research Report

# THE SCIENCE OF POPULATION HEALTH

## FROM THE DIRECTOR



As the Division of Research (DOR) celebrates its 50th birthday this year, it is safe to say that the DOR has become a central component in Kaiser Permanente's commitment to maintain and improve the health of its member population.

That commitment began with an early appreciation that our unique capacities for research derive from the fact that we provide comprehensive health care services to a defined population.

It also derived from the vision of Morris F. Collen, MD, the DOR's founding director. With the support of Sidney Garfield, MD, Morrie saw the utility and power of using computer technology to enhance clinical care through research. His pioneering work provided the foundation for the DOR's achievements in epidemiological research and for Kaiser Permanente's early adoption of the electronic health record.

As our member population and clinical data have grown, the ability of DOR investigators to address complex clinical questions has become increasingly sophisticated.

Today, DOR investigators partner with physicians and leaders of The Permanente Medical Group (TPMG) to address questions of importance to TPMG and our patients.

We also collaborate with our research colleagues in other Kaiser Permanente regions and with other members of the HMO Research Network on studies requiring larger clinical populations or studies of variations in approaches to care across regions. Our aim in these studies is to help define the best ways to preserve health and manage illness in our members by understanding the effects of genetics, the environment, behaviors and medical therapies, and interactions between these factors.

When I came to the DOR in 1984, I was enamored with the idea that taking care of a large population of patients requires an understanding of who they are and how they are faring over time. Now, 27 years later, we have the technological infrastructure and collaborative partnerships inside and outside Kaiser Permanente that enable us to conduct the research and quality improvement work that make this a reality.

Over the last decade, we've stretched in new directions. Capitalizing on the mapping of the human genome and technology tools that continue to grow in power and scope, we've established the Research Program on Genes, Environment, and Health. This unprecedented database and biorepository capacity will place our investigators at the forefront of unraveling the interplay of genetics and the environment in determining health and disease.

We are increasingly leveraging Kaiser Permanente's potential for conducting strategically important

clinical trials. With the support of the DOR's Comprehensive Clinical Research Unit, DOR scientists partner with TPMG clinical and operational leaders to conduct clinical trials that evaluate new therapies and new system-level approaches to providing care.

With national health care reform a reality, we are ideally positioned to study the design and administration of health care benefits, management of patient populations with chronic illnesses, motivation of patients for self-care and the health care needs of the newly insured.

During my 13 years as director, I've been proud to see DOR scientists and staff members recognize and embrace the special opportunities we enjoy to partner with our parent organization and with our members in creative and unique research endeavors.

It's with that spirit of scientific pursuit in mind that I am announcing my final year as director of the DOR. In 2012, I will re-join the ranks of my colleagues as a scientist, to continue engaging in research that helps answer the important question: How well do specific interventions or treatments work for our patients and others in everyday practice?

I have complete confidence that the DOR will continue to use its unique assets and abilities to advance the research that matters most for patients.

*Joe V. Selby, MD, MPH*

## TEN TOP STORIES

Welcome to the 2010 research report for the Kaiser Permanente Division of Research. This report features 10 stories that embody our continued commitment to the science of population health. For a deeper look at the stories presented here, please visit the full report online at [www.dor.kaiser.org/researchreport](http://www.dor.kaiser.org/researchreport) and let us know what you think.

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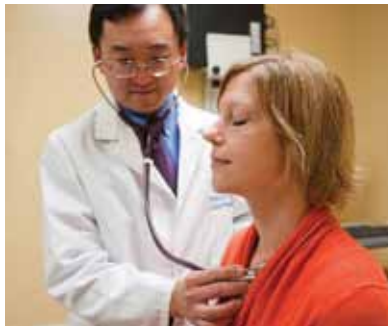


### 01

#### CELEBRATING 50 YEARS OF HEALTH RESEARCH

Through world-class work in a growing number of areas of health research, the Division of Research (DOR) continues down a path of innovation initiated by founding director Morris F. Collen, MD. Dr. Collen led the early explorations of how data from electronic medical records could be harnessed to understand and improve population health through research.

Now, 50 years later, with more than 3,000 studies published in peer-reviewed journals, more than 50 investigators and 500 staff members, and funding that topped \$90 million in 2010, the DOR continues to make seminal contributions to health services research—in the areas of epidemiology, genetics, health disparities, and improving quality and efficiency of care.



### 02

#### TURNING THE CORNER ON HEART ATTACK INCIDENCE

Division of Research scientist Alan Go, MD, led the team that published a study showing that since 2000, heart attacks declined by 24 percent within the Kaiser Permanente Northern California population. The study also showed that the relative incidence of serious heart attacks declined by 62 percent.

Investigators found that the reduction in death after heart attack was driven, in part, by the decline in the frequency of more serious heart attacks, as well as by lower mortality rates after less severe heart attacks.

The study, published in *The New England Journal of Medicine*, examines the influence of biomarker use and provides a contemporary population view of heart attack incidence.

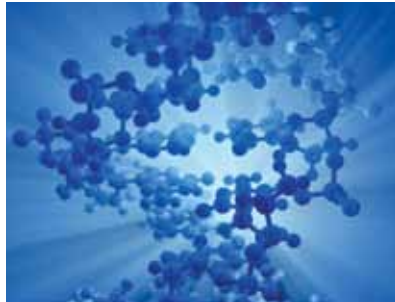


### 03

#### AUTISM RESEARCH THAT IS LEADING THE WAY

About 1 in every 110 children has an autism spectrum disorder, according to the Centers for Disease Control and Prevention. This makes autism the fastest growing developmental disability in the country. However, little is known about what causes it.

Lisa Croen, PhD, and her team at the Division of Research are looking for answers. They are part of the Early Autism Risk Longitudinal Investigation (EARLI) network. In this largest-of-its-kind study, the four National Institutes of Health-funded network sites will follow 1,200 mothers of children with autism at the start of another pregnancy and document the newborn child's development through age 3.



## 04

### RPGEH: AN UNPRECEDENTED RESOURCE

Division of Research investigators are bringing together information about the genes, environment and health histories of thousands of consenting Northern California Kaiser Permanente members.

The Research Program on Genes, Environment, and Health (RPGEH) is an unprecedented resource that will accelerate investigation of the genetic and environmental underpinnings of many health conditions, including diabetes, cancer, heart disease, mental health disorders and chronic infections.

Researchers will also be able to use the assembled data to study genetic influences on medication response in diverse populations. This could lead to treatment and outcome improvements.

In the next few years, the RPGEH plans to enroll 500,000 Kaiser Permanente members in the program.

With special funding from the National Institutes of Health, the RPGEH is genotyping 100,000 participants – looking at 675,000 SNPs and measuring telomere lengths. This work – to be completed in late 2011 and available to researchers in 2012 – will create one of the largest genetic data sets available for research.



## 05

### PREVENTING DEMENTIA BY IDENTIFYING MIDLIFE RISK FACTORS

Many diseases we typically associate with aging may actually have their genesis in midlife. To learn more about these possible midlife risk factors for disease, Division of Research investigator Rachel Whitmer, PhD, and her team have been analyzing retrospective data from Kaiser Permanente members in Northern California.

The team has published several papers in recent years linking midlife risk factors with an increased likelihood of developing dementia in old age. Those risks include midlife obesity, larger abdomens indicative of high levels of visceral fat, and cardiovascular risk factors such as high cholesterol, hypertension, diabetes and smoking.



## 06

### TOP HONORS FOR TWO INVESTIGATORS

Two Division of Research (DOR) investigators – Joe V. Selby, MD, MPH, DOR director, and Michael Horberg, MD, MAS, director of

HIV/AIDS for Kaiser Permanente and now executive director of research for the Mid-Atlantic Permanente Medical Group – recently received noteworthy honors.

Dr. Selby was elected to the Institute of Medicine, considered one of the highest honors in the fields of health and medicine, and Dr. Horberg was appointed to the Presidential Advisory Council on HIV/AIDS.



## 07

### STUDY TO LOOK AT GESTATIONAL DIABETES INTERVENTION

Every year about 7 percent of expectant mothers in the United States develop gestational diabetes. Though the condition often resolves after pregnancy, an estimated 30 to 50 percent of women who had the disorder during pregnancy will later develop permanent type 2 diabetes.

To help affected women avoid type 2 diabetes, a Division of Research team, led by Assiamira Ferrara, MD, PhD, is launching a study to show that “lifestyle coaches” trained to conduct “motivational interviewing” by telephone can help new mothers avoid type 2 diabetes by choosing good daily living habits.



## 08

### SEEKING WAYS TO IMPROVE ALCOHOL SCREENING

Research shows that even though alcohol screening and brief motivational interventions reduce overall health care costs and help reduce drinking among primary care patients, they are seldom offered by primary care practices in the United States.

To help remedy that, Division of Research (DOR) scientists, led by principal investigator Jennifer Mertens, PhD, are studying whether the best way to deliver “screen and intervene” services is via physicians or non-physicians.

In the process, DOR researchers are training physician and non-physician providers to screen and intervene with patients who are drinking more than what is recommended by the National Institutes of Health.

Because heavy alcohol use affects virtually every organ system, screening and intervening is important to improving preventive care for our members, says Robert Pearl, MD, executive director and chief executive officer of The Permanente Medical Group.



## 09

### STIMULUS FUNDS ADVANCE EVIDENCE-BASED HEALTH CARE RESEARCH

The Division of Research has received more than \$68.6 million to conduct health care research through the American Recovery and Reinvestment Act of 2009.

#### The largest grants include:

- \$24.8 million for genotyping and measuring telomeres of DNA from 100,000 consenting Kaiser Permanente members, a large step toward bringing together information about the genes, environmental exposures, health habits and health outcomes of 500,000 Northern California Kaiser Permanente members
- \$8.9 million to create a multi-site consortium for comparative effectiveness research in prevention and treatment of diabetes
- \$8.4 million to study the comparative effectiveness of diabetes prevention strategies for women with gestational diabetes
- \$7.2 million to develop a cardiovascular disease surveillance system across 15 health care organizations.



## 10

### EXPLORING WAYS TO BRIDGE THE HEALTH CARE DISPARITIES GAP

The diabetes care studies of senior scientist Andrew Karter, PhD, are emblematic of the Division of Research’s commitment to disparities research.

In the January 2011 issue of the *Journal of General Internal Medicine*, Dr. Karter and his co-authors shed light on how controlling diabetes is made more difficult if patients and doctors don’t speak the same language.

Researchers showed that Spanish-speaking patients who cannot talk about their diabetes with their doctor in their own language were nearly twice as likely to have poor blood sugar control compared to those whose doctors did speak Spanish.

“This study contributes additional evidence that the quality of communication between physician and patient is an important component of successful diabetes care,” said Dr. Karter.

To view the full report, please visit:  
[www.dor.kaiser.org/researchreport](http://www.dor.kaiser.org/researchreport)

# FINANCIALS

The Division of Research (DOR) is home to 44 investigators and eight staff scientists who served as principal investigators or co-investigators on more than 400 research projects in 2010. The DOR also supports 22 adjunct investigators from other academic institutions and 35 clinician investigators from The Permanente Medical Group. The DOR was awarded 120 new grants and contracts in 2010. Of the total funding for research activities in 2010, extramural funding totaled \$84.8 million, an increase of 48.7 percent from fiscal year 2009.

## 2010 Funding

Total: \$96,199,236

## 2009 Funding

Total: \$72,396,181

