Forecasting is common across a wide variety of disciplines, and projecting the future often helps to inform the policy-making process, whether it’s the population trends produced by demographers or the fiscal projections of economists. But conspicuously absent from many discussions are projections on the population health impact based on various scenarios.

“We do a lot of work trying to understand what’s happened in the past, and we learn from that,” says Dr. Jonathan Fielding, professor at the UCLA School of Public Health and director of public health for Los Angeles County. “We also spend a lot of time conducting surveys to examine the health status, health risks, health problems, and health improvement opportunities today. The key piece that we haven’t been looking at sufficiently is the future. Even if nothing changed in terms of current trends, what would the health of the American people be 10-20 years from now? What would be the opportunities? How big would the disparities be compared to now? And, more important, how big an impact can alternative policies and programs that could be implemented today make on our health in 10, 20 or 30 years?”

So Fielding and two of his School of Public Health colleagues, Drs. Gerald Kominski and Hal Morgenstern, are leading an effort to develop a Population Health Forecasting Model that would project population health status trends in California. With funding from The California Endowment, the researchers are creating a framework that they hope will eventually facilitate projections on a broad range of health outcomes based on variables that include health behaviors, technological advances and demographic trends.

“California has rapidly changing demographics when you consider the aging population, lots of immigration into the state and one of the most ethnically diverse populations in the nation,” notes Kominski. “So it’s important to have information about population health status not only as it stands today, but also as it will be down the road based on current trends. Right now we don’t have a clear idea of what the impact of these changes is going to be on the future health and health needs of the population.”
Even if health behaviors and health-related technology remained constant over the next 10 years, the distribution of disease in California would change based on population trends. For example, the higher birth rate among Latinos portends a rise in Type 2 diabetes, all else being equal, given the higher incidence of the disease in the Latino population (double that of non-Latinos).

But UCLA’s Population Health Forecasting Model aims not just to project based on inaction. “We’re interested in building the capability to ask how we can improve the health of California’s population,” says Kominski. “We would like to create a model in which, holding these other changes constant, we could compare various policy alternatives to see which investments could provide maximum benefit per dollar expended. That would be a very important tool for policy-makers, research funders and even direct service providers.”

Furthermore, the model could provide input on the health impact of policies that are not meant to be health-oriented — an after-school program, for example. “So much of what we do in society has an influence on health, whether it’s direct or indirect,” says Morgenstern. “Part of the project is to determine what the pathways will be between the intervention and health status, and attempt to model that in some way for the purposes of projecting change.”

Morgenstern believes that in the absence of such a model, decisions on many policies are often made with little, if any, consideration of their health implications. “The lack of information to policy-making that is often minimized,” he says. “Whether considering the health impact will change the decision-making process is open to question at this point, but certainly the opportunity is there.”

As an official involved in decision-making at the county level, Fielding suspects that, if the forecasting model proves feasible, many entities will find it valuable as they mull critical policy questions. “We’re making a lot of decisions in government with tools that can be improved,” he says. “I hope that having county-level data will help our department, our board of supervisors and others who make decisions in the health sector as well as other sectors to understand the trade-offs between alternative decisions.”

In addition to assisting California policy-makers at the state and local levels, the model has the potential to be put to good use nationally, our data going back more than a century. In addition, in an effort to meet the methodological challenges, the UCLA School of Public Health team has assembled an advisory group consisting of experts from the public health and health care fields as well as from other sectors in which forecasting is more advanced.

For the initial feasibility study, the Population Health Forecasting Model is focusing on the potential future impact of a single set of interventions, involving physical activity. The reason behind that selection is twofold. The UCLA team did not want to reinvent the work of others, and models have been developed in areas such as cardiovascular disease risk factors and smoking behavior, but not to estimate the effects of changes in physical activity. In addition, notes Fielding, “There is a lot of concern about the adverse impact of lack of physical activity on health broadly, specifically about the increase of overweight and obesity.”

But, while one issue is being used to demonstrate feasibility, the researchers intend to complete the project with a model that, though subject to further refinement, will be capable of accepting input on a more comprehensive set of variables, as well as a wide array of health outcomes. “My vision for this project is that it would become the health equivalent to the UCLA Anderson Forecast,” Kominski says, referring to one of the nation’s most closely watched economic predictors. “In the long term, we would like to present not just a snapshot, but a projection of what impact changes in population characteristics, economic conditions, and medical technology are going to have on the short- and long-term future health of the state’s population.”