



\$3 Million Prize Offered to Solve Hospital Admissions Puzzle

Cheryl Clark, for HealthLeaders Media , December 30, 2010

Attention, wizards, rocket scientists, game theorists and stats nerds: There's a physician in Los Angeles who wants to *give* you \$3 million.

All you have to do is design an elegant math model that accurately identifies which of 100,000 patients from an actual 2009 database required an unplanned hospital admission in 2010.

The [prize](#) is offered by Richard Merkin, MD, Heritage Provider Network CEO and President. Heritage is an accountable care organization-like physician network that absorbs risk for 700,000 lives in Southern and Central California and New York and which contracts with more than 100 hospitals.

The idea is to design a suitable [predictive model](#), so programs and resources can be focused to prevent those admissions – and [readmissions](#) – and potentially realize savings of up to \$30 billion, the estimated cost of [unnecessary hospitalizations](#) throughout the U.S.

"If we could predict who was going to be hospitalized, we could put resources [in place] to prevent that and then we could reallocate a lot of [what's spent on care] into finding cures," Merkin says.

The \$3 prize is approximately double that of the Nobel Prize in Medicine.

By offering such a high prize, "We will stimulate people who normally would not go into healthcare, brilliant young mathematicians, engineering, and analytical types," says Merkin, a former Southern California emergency department doctor who once directed a medical group for ED physicians.

The less they know about healthcare might be all the better, Merkin says, only half joking.

Specifically, the Marina del Rey doctor says he's looking for scientists who might study gravitational waves, or "whiz kids who might have chosen the space program, or who helped develop the Internet. We want people with young passionate minds, people who don't know what can't be done."

Think "[Millennium](#)" prizes for solving tough math problems offered by the Cambridge, MA Clay Mathematics Institute.

Current predictive models are accurate only about 18% of the time, and that's on a good day.

So far, 200 teams of contestants from as far as China and India, as well as Harvard University and Georgia Tech, have expressed interest in the contest, which will officially open in the next three months.

Merkin thinks teams might have the best chance. "The best way to achieve radical breakthroughs and innovation will be to encourage these youngsters to team up, collaborate, and work together to come up with a great technology," he says.

Asked how he got the idea, Merkin says the lightbulb went on as he was acting in his capacity as a California Institute of Technology trustee.

"I'm surrounded by young brilliant minds. As I discussed with faculty the challenges in healthcare, I realized that a lot of these brilliant young minds were mathematicians. And they were studying genomics and personalized medicine. I asked them why, and they said they look at pattern recognition and see biology as data, and that really, there's a treasure trove of data in medicine today. It's just not organized."

The idea of incenting innovation with prize money might seem mercenary — wouldn't smart people just want to do this for psychic reward? Or because it helps mankind?

But it's been successful many times. Merkin points to New York hotel owner [Raymond Orteig](#), who offered \$25,000 to anyone who could fly from New York to Paris, prompting Charles Lindbergh and his Spirit of St. Louis to take his challenge in 1927. We know what happened after that.

And there's the [X Prize](#), which has triggered an industry in space tourism.

"During the Napoleonic wars, the French government offered a prize to anyone who could solve the problem of food spoilage, because the lack of food was causing malnutrition and starvation. A French candy maker [designed a way to can food](#), and spawned a new industry," Merkin says.

"By bringing people into industries or having them develop industries that did not exist through incentives like this, I thought that maybe I too could modestly change the world."

There will be an entry fee of up to \$400, which a Heritage spokeswoman says is necessary to assemble the database and make sure contestants are serious about the project.

Merkin says the database qualifying entrants will receive includes claims information, lab and pharmacy data, hospitalizations, and diagnostic history for 100,000 real but de-identified patients seen in 2009.

They will then develop an algorithm to predict which patients were hospitalized.

The contestants will not receive information on the patient's race, ethnicity, weight, age, socioeconomic level or geographic area of residence, which makes the job even tougher.

After the contestants have shown the contest judges that they have developed a viable algorithm, they will then be provided information on a second set of patients. This second set, however, will not include information on whether the patients were hospitalized. Then, the judges will see if the contestants' algorithm applied to this second set can accurately predict hospitalization.

If the judges decide the algorithm is accurate, the contestants will be provided with a final test dataset, to which the algorithm will once again be applied. "If the algorithm correctly predicts the hospitalization of the required percentage of the test dataset patients, with the correct specificity, and their algorithm is the first to do so, that team will win the prize," Merkin says.

Merkin is not unknown in California healthcare. He serves on the advisory board for the Assembly Subcommittee on Health, chairs the Blue Ribbon Commission on Health Plan Integrity and sits on the board of the Los Angeles County Sheriffs Task Force for Medical and Mental Health and is California Association of Physician Groups board member.

He founded the non-profit Heritage Medical Research Institute, which specializes in quality and outcomes, and funded a stem cell research project at the Broad Institute.

Merkin's prize has support from some big names in healthcare. Former Health and Human Services Secretary Michael Leavitt was quoted in a press release about the prize saying: "We need innovative thinking to solve one of the biggest dilemmas of our time – ever-rising health care costs. The Health Prize is an example of what the private sector is willing to do to encourage that type of thinking."

Who knows whether Merkin's idea will spawn a new technology, or whether a winning solution can apply beyond a patient population as well. If it works in Los Angeles, will it also work in Miami or Denver?

It's certainly an interesting idea, with great potential benefit for patients and providers too.