



How big data could cure readmission

By Russ Banham | June 8, 2016

Readmission costs American health care more than \$40 billion per year. It's also increasingly bad for a hospital's bottom line: Last year, 2,600 hospitals with higher-than-average readmission rates were hit with penalties under the Affordable Care Act.



Why do patients wind up back in the hospital? The quality of treatment is one factor, but so is what happens – or doesn't – after a patient goes home. A 2014 study in *Annals of Internal Medicine* found that patients at hospitals in economically disadvantaged neighborhoods were readmitted at higher rates than patients in wealthier areas.

Armed with this knowledge, some hospitals are using predictive analytics to study their patients' demographic and socioeconomic data – to identify, in advance, the people who are more likely to be re-hospitalized, then target interventions to individual patients.

It's one of many emerging uses of data analytics to connect hospital practices with patients' daily lives. Some hospitals are also using sophisticated math to compare patient diagnoses and treatments to recovery outcomes, and to identify patients who are at higher risk of emergency room admissions and longer inpatient stays.

Predictive analytics help hospitals and doctors “make decisions that are often better than those made purely based on the human eye,” says Amy Abernethy, M.D., chief medical and scientific officer at New York City-based Flatiron Health, a technology company that uses data analytics in the fight against cancer.

“By using algorithms,” Abernethy says, “you can determine if a patient fits better in this box or that one.”

To apply patient data to readmission rates, the authors of the “*Annals of Internal Medicine*” study created an Area Deprivation Index. It culls data from the U.S. Census Bureau and shows the education levels, employment statistics, and average incomes in a particular patient's neighborhood.

Based on this socioeconomic information – provided via a free online toolkit – a physician can ask a patient questions that lead to additional insight. How far do you live from a pharmacy? Do you have a caregiver at home? Do you have access to a telephone or computer? Do you own a car?

Analytics tools sift through the data to determine which patients are most likely to wind up in the hospital again. Then the hospital can provide services that meet a patient's specific needs, such as a post-discharge phone call when a prescription needs refilling. If the patient has no way to drive to the pharmacy, arrangements can be made to send the drugs directly to his home.

It's a vastly less expensive option than readmission.

Among the hospitals using predictive analytics are two Indiana-based facilities, 25 miles apart: Schneck Medical Center in Seymour and Columbus Regional Health in Columbus. Though they're competitors, the hospitals created a joint integrated network, inSPIRE Health Partners. The network culls data and creates a "risk readmission score" to determine how likely a patient is to return for additional treatment, and offer a range of prescriptive post-discharge services.

Though the initiative is in its early stages, "our readmission rates continue to get better and better," says Sherry Tiemeyer, director of patient volunteer and nursing home services at Schneck. In 2014, 28 percent of Schneck's patients with COPD, or chronic obstructive pulmonary disease, were readmitted, she says. In 2015, that rate was reduced to 4.55 percent.

That's good news for the community, says Debbie Ridlen, Schneck's vice president of fiscal services. Hospital stay rates are "a major concern to employers wanting assurance that they are getting the most value for the dollars spent," she says.

And thanks to the data, the hospital is learning which post-discharge tactics work best, Ridlen says.

"The sooner a patient is seen by their primary care physician after a discharge," she says, "the chance of readmission is much less."

Russ Banham is a Pulitzer-nominated journalist and author of 24 books, including "Higher," his company history of aerospace giant Boeing, in bookstores now.

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