

The Surgeon Shuffle: How Moving Doctors Across Hospitals Can Save Lives

by Abigail Hiller

Pauline Mourot has an idea that could save more than 800 lives a year. All it would require? Switching cardiac surgeons between hospitals.

The proposal combines a classic idea from labor economics— worker sorting across firms—with the economics of healthcare production. In the health economics literature, often known for hotly debated topics like insurance and drug pricing, Mourot’s job market paper, “Should Top Surgeons Practice at Top Hospitals? Sorting and Complementarities in Healthcare,” stands out.

“If we understand how healthcare is produced, then we can think about how to guarantee the best patient outcomes,” Mourot explained over coffee at UChicago one morning this spring. “This idea is long-standing in the labor literature... How do we want workers to sort across firms so that we maximize production?”

Surgeons likely perform better when they practice at high-survival hospitals—places where patients are already more likely to survive a cardiac surgery. The question is, do these high-survival hospitals raise the performances of skilled surgeons more than, less than, or the same as they raise the performance of less skilled surgeons?

High-survival hospitals may raise the performances of skilled surgeons more than that of less skilled surgeons, if, for example, high-survival hospitals tend to be more technologically advanced and skilled surgeons take advantage of robot-assisted surgery more than their less skilled colleagues. In this case, economists would say that a complementarity exists between surgeon skills and hospital technology.

On the other hand, it’s possible that high-survival hospitals may raise the performances of less skilled surgeons more than that of their more skilled colleagues, making surgeon skills and hospital quality substitutes.

Finally, hospital quality may also raise surgeon performances equally across surgeons, in which case surgeon skills and hospital quality would be independent.



Pauline Mourot

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Determining whether surgeons’ skills and hospitals’ ability to save patients are complements, substitutes, or independent will tell us how surgeons should sort across hospitals, and, specifically, whether the most skilled surgeons should work at the highest survival hospitals. The magnitude of the complementarity or substitutability will determine how sensitive patient outcomes are to the way surgeons sort across hospitals. “It’s very important to understand how doctors combine with the hospital to produce healthcare to gain insights on the role of doctors in driving patients outcomes, not only through their own individual skills but also through their choice of workplace,” Mourot said.

Historically, quantifying sorting and its effects has been challenging. Data rarely capture the contributions of individual employees, leaving researchers to use approximations for productivity like wages to identify the best workers. Enter Medicare data.

“I’ve been extremely lucky because I was at UChicago, where I had access to the Medicare claims data at BFI,” Mourot said. In 2018, the Becker Friedman Institute for Economics (BFI) Health Economics Initiative purchased Medicare claims

data, providing UChicago economists with a rich set of information about procedures, patient outcomes, and the doctors and hospitals delivering care.

Medical claims data is at the core of much of health economics research. Since 2018, UChicago scholars affiliated with BFI's Health Economics Initiative have published several papers using the asset, generating new insights about the influence of government policies on doctors' earnings and the best places to locate healthcare.

Using these data, Mourot focused on the cardiac surgeons who perform coronary artery bypass graft (CABG) surgery, also known as heart bypass surgery. Cardiac surgeons tend to perform surgeries at multiple hospitals during the same year, which allows her to separate the contribution of surgeons from the contribution of hospitals to patient survival for CABG surgery. Mourot measures how this sorting of surgeons across hospitals impacts patient survival.

As one might expect, Mourot found that high-survival surgeons tend to practice at the high-survival hospitals. Surgeons with the highest CABG survival rates practice at hospitals where CABG survival rates are also highest—a classic example of what the labor literature coins positive assortative matching.

What Mourot found next surprised her. High-survival doctors maintain high survival rates regardless of where they practice, but low-survival surgeons perform significantly better at high-survival hospitals. In other words, surgeons and hospitals are substitutes in the production of patient survival. Mourot puts it in her paper, "Low-survival surgeons have much higher returns from practicing at a high-survival hospital than high-survival surgeons do."

Determined to understand what was driving her results, Mourot made the trek across UChicago's main quadrangle from the Booth School of Business to UChicago Medicine to speak with the hospital's surgeons. "When I found out that there were substitutes, I asked them, does that make sense to you? Because I was surprised. I thought I would find complementarities."

The surgeons were not surprised. "They told me yes, that makes sense to us. We call it failure-to-rescue."

Mourot turned to the medical literature. Failure-to-rescue is the inability of a hospital to save patients

from complications. High-survival hospitals, it turns out, are better able to rescue patients from complications. "It makes a lot of sense," Mourot explained. "High-survival surgeons achieve low complication rates, and no matter where they take their patients, that patient is going to survive. But for low-survival surgeons, they might not be able to avoid as many complications. If the patient is at a high-survival hospital, the patient is going to survive and go home. But if the patient is at a low-survival hospital, they are more likely to die from complications."

The upshot? Reassigning low-survival surgeons to high-survival hospitals, and high-survival surgeons to low-survival hospitals, would save approximately 800 lives each year from CABG surgeries alone, half of which is achievable by reallocating surgeons within their current regions.

Mourot is a sixth-year PhD student in Economics at the Chicago Booth School of Business. This summer she will join Boston University as an Assistant Professor in Economics, where she will teach health economics to second-year PhD students beginning next spring.

While in Boston, Mourot will continue to study the production of healthcare. She plans to home in on the drivers of disparities across different parts of the United States, and how they relate to the organization of production in healthcare. "If at some point, the body of work I come up with helps to design effective policies and regulation aiming at reducing disparities in health outcomes between patients, that would be absolutely amazing."

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