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Kidney Picking

Why so many of the valuable organs are going to waste.

By Jake Halpern

Posted Wednesday, Oct. 10, 2007, at 2:24 PM ET

Human kidneys are among the world's rarest commodities, and [the process for allocating them](#), here in the United States at least, is generally considered to be straightforward and highly efficient. But that's not exactly true. Every year since 1998, more than 1,000 kidneys have been thrown into America's trash. In 2005, for example, 14.1 percent of recovered kidneys went unused, a disconcerting amount for a scarce commodity on which life depends. It's especially troubling when you stop to consider that, in any given year, the number of patients who are added to the transplant waiting list is roughly twice as large as the number of kidneys that are actually transplanted. Last year, the Organ Procurement and Transplantation Network—established by Congress to oversee the nation's transplant systems—expressed concern that viable, potentially life-saving kidneys were too frequently being wasted.

Why are so many kidneys being thrown out? Professor Juanjuan Zhang, a 28-year-old wunderkind on the faculty of MIT's Sloan School of Management, is about to release a study suggesting that the problem lies not in technology, or medical expertise, or even bureaucratic red tape, but an economic theory known as "herding." This theory holds that human beings, from a very early age, learn that the best commodities are the ones that everyone wants. This is why we are persuaded by ads boasting claims like "America's Favorite Peanut Butter" or the "Most Popular Brand of Air Conditioner in the World." Either by evolution or social learning, our brains are partial to this line of thought: *If someone else doesn't want it, then neither do I, because it can't be that good.* Often, this serves us well, but Zhang claims that it is backfiring in the world of kidney transplants.

In her study, Zhang analyzed the fate of 275 donated kidneys from a major transplant center in Texas. She paints the following picture of herding run amock. Candidates who have higher priority for a kidney, because they have been on queue for a long time, can afford to be picky and tell their doctors to wait for a high-quality specimen. Such a candidate may want a "young" kidney—for example, one from a teenager who recently died from a head trauma—because these kidneys typically last longer. For this, or any number of other reasons, another kidney is offered and then rejected.

Here's where it gets interesting. The next candidate on the list, knowing that he or she is being offered a "rejected kidney," also says no. The patient and his or her doctor assume that if someone else turned it down, the organ can't be that good. What's more, the candidate knows that he or she is near the top of the queue and, soon enough, will get top pick. The more times a kidney is rejected, says Zhang, the more likely a patient or doctor is to infer that it is a bad kidney. The problem is that while all of this is going on, time is ticking away, and kidneys go bad. Indeed, a kidney can survive on ice only for roughly 48 hours once it has been "harvested."

Of course, it is impossible to know for certain why doctors turn down a given kidney, and the vast majority of the time, the doctors involved can cite legitimate medical reasons. Nonetheless, Zhang argues that patients and doctors—knowingly or not—put far too much stock in the knowledge that a given kidney has been repeatedly rejected. What's her proof? Her research revealed that a typical kidney is accepted after 33 rejections. Zhang then built a statistical model, in which she assigned numeric values to all of the considerations that go into the kidney evaluation process, and determined that knowledge of "previous rejections" was a very significant consideration. Indeed, she concluded that if you removed this information from the process, the average kidney would be accepted after just three rejections.

Zhang's research has its limitations. To begin with, she is not a nephrologist or even a physician, and this puts her at a disadvantage when she tries to understand, on a case-by-case basis, what factors most influence doctors. Secondly, her research is not based on a controlled study, which would undoubtedly be the best option. Instead, her statistical model uses notes and other data to re-create the thinking that went on among hundreds of transplant teams, and then Zhang herself assigns numeric values to each of the many small considerations that were made. This is enough to make some kidney specialists cringe. Dr. Dicken Ko, who is the surgical director the Renal Transplantation Program at Massachusetts General Hospital, says that the medical judgments made in these circumstances can't be reduced to a set of simplified "theories, rules, or equations."

Ko maintains that a certain percentage of kidneys always end up being discarded because, inevitably, some of the organs have serious unforeseen anatomical or pathological abnormalities. "It's like apple picking," he says. "You can try to pick as many apples as you want, but not every single one will be selected for the produce store." He also dismisses the notion that doctors are so heavily influenced by a kidney's history of being rejected, because he insists that doctors are rigorously trained to rely on universal standards and to make independent judgments.

There are those, however, who are far more open to the merits of Zhang's theory. Dr. Peter Reese, who is a kidney specialist at the University of Pennsylvania Hospital in Philadelphia, is one of them. "If you knew that someone had made a bid on a house and then pulled out, wouldn't you be curious or skeptical about what had happened?" he asks. Even if the house looked fine, says Reese, it would be natural to wonder whether the inspector found termites, if there was a leak in the roof, or whether there was a problem with the deed. Reese concludes that both patients and doctors are susceptible to this type of thinking.

Ever since childhood, the idea of "leftovers" and "hand-me-downs" has been repugnant for most of us. In general, we are skeptical of things that other human beings don't want. Zhang's work indicates that this skepticism may well originate from an evolutionary mechanism that allows us to benefit from the knowledge and experience of others. It's true that doctors are trained to make independent judgments; still, even doctors are susceptible to ancient evolutionary impulses and subconscious inclinations. Many transplant specialists may bristle at the thought that they choose their kidneys and their peanut butter in a vaguely similar fashion. But the truth of the matter is that we are all, occasionally, more simple-minded than we would care to admit.

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The responsibility for allocating kidneys falls to the United Network for Organ Sharing. Basically, after an organ donor dies, medical technicians run a number of tests to see how healthy a kidney is and to determine its blood and tissue type. Next, a "procurement coordinator" inputs all of this information into a national computer network, and instantly a "match list" is generated of possible recipients. The ranking on the list is affected by a number of factors including tissue match, blood type, immune status, the length of time a candidate has been on the waiting list, and the distance between the potential recipient and the donor. Finally, the kidneys are removed and put on ice, where they can stay viable for up to 48 hours while they are being sent to a transplant center.

Jake Halpern is a commentator for NPR's All Things Considered and is the author of [Fame Junkies](#).

Article URL: <http://www.slate.com/id/2175642/>

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