Quantity Over Quality: Metrics in Solid Organ Transplantation

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Solid organ transplantation is a complex health intervention with much at stake for healthcare professionals, health funders and providers, and, of course, patients. In this month's issue of *Transplantation*, Brett and colleagues¹ describe their careful systematic review of the published literature on quality metrics in solid organ transplantation, which identifies, describes, and characterizes the use of healthcare metrics on solid organ transplantation practice.

Their findings provide sobering reading for clinicians, policy makers, and patients. They found a remarkable 114 different metrics, but a lack of consistency, poor definitions, and opaque development criteria were the norm. Only 5 studies described their methodology for development of their metrics. There was an understandable focus on safety (37% of metrics) and effectiveness (22%), which were clearly important domains, but others such as equity (1%) and patient centeredness (9%) were uncommon. Only rarely (6 studies) was the relationship between metrics and clinical outcomes reported in a trial setting, using a before and after study design. There were no randomized trials of metric use to rigorously assess effect on outcomes. It is unclear, therefore, whether the measurement of any element of the solid organ transplantation process can be expected to lead to improved outcomes. The authors have certainly found that measurement is occurring in solid organ transplantation practice, but whether the use of metrics is delivering better quality care and improved outcomes is unknown.

On the other hand, process measurement is well established in other spheres of healthcare delivery, so it may be reasonable to assume that measurement, reporting, and assessment of transplant processes could lead to improved outcomes. For example, central venous catheter infection rate measurement and

feedback to health practitioners and hospital administrators, along with strategies to support adherence to simple evidence-based practices, have been associated with dramatic reduction in infection rates.² Replicating the program in other health jurisdictions results in similar improvements.³

On the other hand, measurement of healthcare processes is neither necessarily benign nor uniformly beneficial and may divert healthcare resources away from effective interventions. Evidence from randomized trials of interventions for providing measurement and feedback for evidence-based treatments has returned negative results from a range of conditions, settings, and interventions, including post-acute myocardial infarction discharge medication prescription,⁴ primary care asthma treatment in children,⁵ and secondary prevention of cardiovascular disease events in primary care.⁶

Effect of measurement on delivery of healthcare may be even more complex in solid organ transplantation. In the United States, program-specific measurement and reporting of risk factor-adjusted 1-year patient and graft outcomes in kidney transplantation has been a mandatory requirement. Although graft and patient survival after kidney transplantation is indisputably important, the effect of the measurement and reporting has been controversial. Even small observed reductions in these "hard endpoints," which may be attributable to lack of adjustment for unmeasured confounders, such as demographic variability of local populations, may have unintended negative effects as transplant units become averse to performing high-risk transplants in an effort to meet these metrics. Transplant centers "flagged" as having lower than expected outcomes experience significant reductions in transplant volume and lead to increased removal of patients from the waiting list with reduction in waiting list mortality,⁷ suggesting more conservative decision making by flagged programs. This in turn may lead to various populations (eg, elderly, children, those at high risk of disease recurrence, highly sensitized, and various ethnicities) being effectively excluded from transplantation. Although avoiding transplantation in high-risk individuals undoubtedly may improve outcomes, such cautious practice needed to attain these may not optimally meet the needs and expectations of the organ failure population or the public at large.

Brett and colleagues have provided an important insight therefore to the use of metrics in solid organ transplantation. At this point, in the absence of clear evidence to guide the effects of metrics in transplantation, any measures implemented should be developed by multidisciplinary groups, including health professionals, potential transplant recipients, healthcare funders, and the general public. Their introduction needs to be cautious and the effect of implementation on clinical outcomes relevant

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to patients with organ failure evaluated systematically, preferably with randomized trials where this is achievable.

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