Engineering Contractile Ureter-Like Tissue
Interest in engineering new kidneys from embryonic and induced pluripotent stem cells as research models, and perhaps eventually for transplant, is intense. Renal organoids produced from stem cells according to existing protocols lack the ureter. Sallam et al. describe the production of ureter-like tissue, embryonic stem cell–derived ureteric buds that organize ex feto mesenchyme around it to form smooth muscle layers that spontaneously contract. This work represents a step toward developing organoids with a ureter, although inducing the tissue to elongate into a tube and connect it to the kidney is a remaining challenge. See Sallam et al., pages 2253–2262. Also see related editorial by Little, pages 2231–2232.

Alternative mRNA Splicing and Kidney Development
Drop-seq single-cell technology has been used to characterize cellular differentiation changes that underlie kidney development, but it cannot measure alternative splicing of many genes. In this study, full transcript–length single-cell RNA sequencing was used to characterize alternative splicing in the mouse embryonic kidney, with particular attention to identifying genes that are alternatively spliced during the transition from mesenchymal to epithelial cell states, as well as their splicing regulators. These results improve our understanding of the molecular mechanisms that underlie kidney development. See Wineberg et al., pages 2278–2291. Also see related editorial by Chen, pages 2234–2236.

Single-Cell Atlas of the Kidney Glomerulus
Although glomerular disorders are an important cause of CKD, a thorough characterization of the cells in the glomerulus has remained challenging due to the technical difficulties of isolating undamaged cells, especially from glomeruli of diseased animals. Using single-cell transcriptomics techniques, Chung et al. provide a comprehensive single-cell atlas, based on approximately 75,000 cells, including all cell types present, from glomeruli of healthy mice and mice injured in four ways. The data set will be a valuable resource for generating precise tools to interrogate specific glomerular cell types and in identifying genes involved in the pathogenesis of glomerular diseases. See Chung et al., pages 2341–2354.

COVID-19 in Kidney Transplant Recipients
COVID-19 has been associated with high morbidity and mortality in kidney transplant recipients, but risk factors for COVID-19 disease in such patients remain poorly defined. In this prospective cohort study of 1216 patients with kidney transplants, 66 (5%) of whom were identified with COVID-19 disease, Elias et al. report a 1% mortality rate related to COVID-19 disease considering the overall study population and 24% in positive patients. Ethnicity (non-White) and comorbidities (obesity, diabetes, asthma/chronic pulmonary disease) were independently associated with COVID-19 disease. It is imperative that policy makers integrate identified risk factors for the reshaping of renal transplantation in the unprecedented context of this pandemic. See Elias et al., pages 2413–2423.

End-of-Life Care and the Kidney Transplant Process
For patients with ESKD, hoping for or receiving a kidney transplant can shape prognostic expectations and care processes. Butler et al. describe more intensive, in-patient–oriented patterns of end-of-life care for patients who had been waitlisted for or received a kidney transplant compared with other patients with ESKD. Patients who died waiting for a transplant were also less likely to have received hospice services or to have stopped dialysis. In light of powerful defaults in most health systems in the United States toward aggressive interventions to prolong life, these findings suggest that relevance of advance care planning for patients with ESKD extends to the relatively healthy segment of this population engaged in the transplant process. See Butler et al., pages 2424–2433.

Extracorporeal Treatment for Chloroquine and Hydroxychloroquine
Recent use of chloroquine and hydroxychloroquine for COVID-19 has raised concerns regarding managing toxicity from these drugs. To investigate use of extracorporeal treatments in cases of poisoning with these drugs, Berling et al. conducted systematic literature reviews, screened studies, extracted data, and summarized findings. They concluded that these drugs are not dialyzable (not amenable to clinically significant removal by extracorporeal treatments) and said that current clinical evidence strongly argues against use of such treatments in poisoning by chloroquine and quinine. Because data on extracorporeal treatments and hydroxychloroquine toxicity are sparse, the group proposed pharmacokinetic studies to confirm or refute the current impression that the drug is nondialyzable. See Berling et al., pages 2475–2489.