

# Fellows First

## Tips and Tricks

Continued from page 23

**Figure 1. Summary and timeline of fellow-friendly resources**

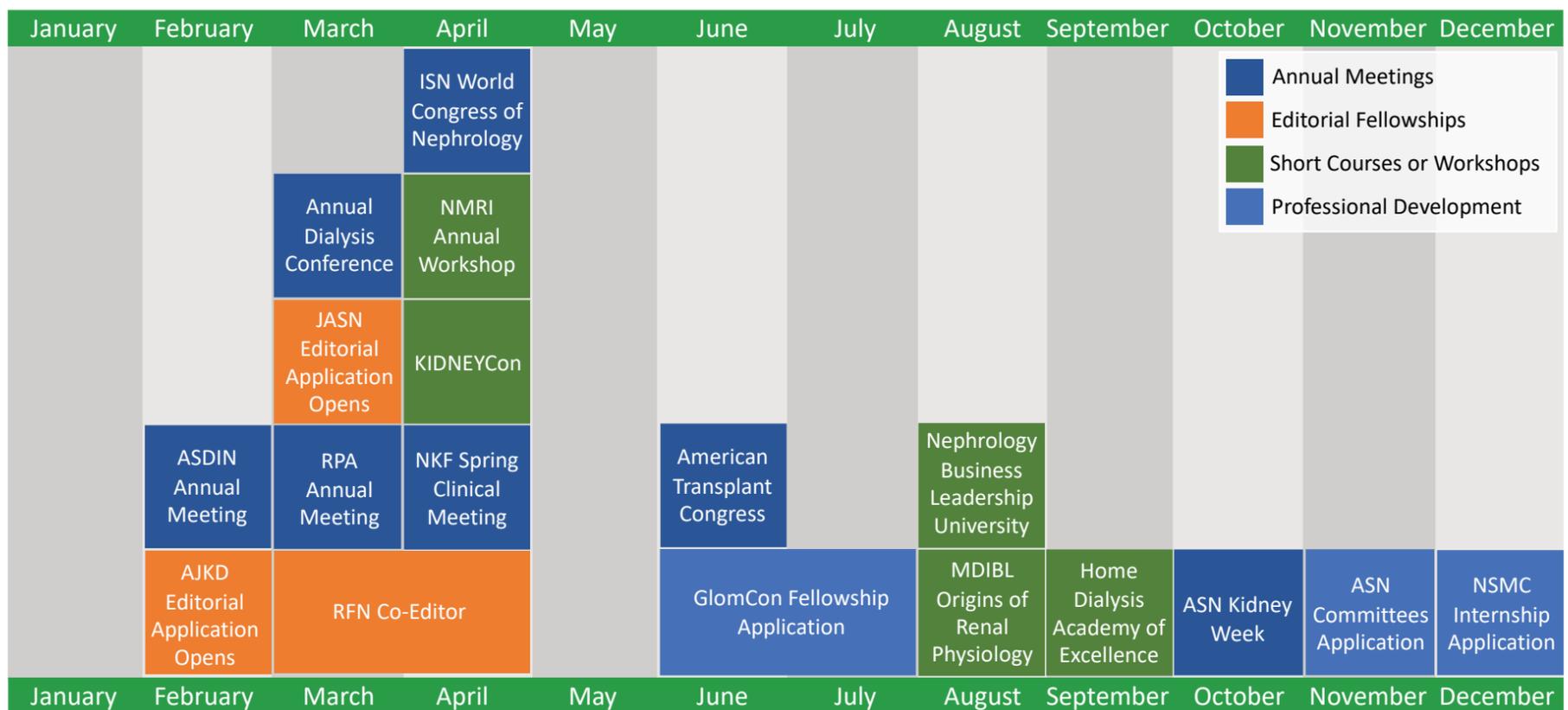


Figure created by: @PabloGarciaMD and @Yuv90

Abbreviations: ASDIN, American Society of Diagnostic and Interventional Nephrology; AJKD, American Journal of Kidney Disease; JASN, Journal of the American Society of Nephrology; RPA, Renal Physicians Association; RFN, Renal Fellow Network; ISN, International Society of Nephrology; NMRI, Network of Minority Health Research Investigators; NKF, National Kidney Foundation; GlomCon, Glomerular Disease Study & Trial Consortium; MDIBL, Mount Desert Island Biological Laboratory; ASN, American Society of Nephrology; NSMC, Nephrology Social Media Collective.

This figure presents a sample of key resources for nephrology fellows and anticipated application deadlines or annual meeting times. For a more thorough review of resources, refer to the main text and tables of this guide. The dark blue boxes represent anticipated meeting times for general nephrology society meetings. The orange boxes represent anticipated application times for editorial fellowships. The green boxes represent anticipated meeting times for short courses and workshops. The light blue boxes represent anticipated application times for professional development opportunities (positions on national committees, social medial collaboratives). These timelines are subject to change.

## High Rate of AKI after Treatment for Infected Knee Replacements

Acute kidney injury (AKI) develops in nearly 1 out of 5 patients treated with antibiotic-loaded “spacers” for periprosthetic infection after total knee arthroplasty (TKA), reports a study in *The Journal of Bone and Joint Surgery*.

The retrospective study included 424 patients undergoing surgical treatment for periprosthetic infection after primary TKA at the Mayo Clinic from 2000 to 2017. Treatment included placement of high-dose antibiotic-loaded bone cement (ABLC) spacers in addition to systemic antibiotics. Mean age was 67 years; 15% of patients had pre-existing chronic kidney disease (CKD). AKI was defined as a creatinine increase or 1.5 times baseline or at least 0.3 mg/dL in any 48-hour period.

Nineteen percent of patients developed AKI while the ABLC spacers were in place. Risk of AKI was much higher among patients with pre-existing CKD: 45% versus 14%, odds ratio 5.0. None of the patients with AKI required acute dialysis.

AKI was more likely to occur when higher concentrations of vancomycin or aminoglycosides (over 3.6 g per batch of cement) were used in the ABLC spacers: odds ratio 1.9 and 1.8, respectively. Among patients without pre-existing CKD, independent risk factors for AKI included hypertension, perioperative hypovolemia, and

atrial fibrillation. Diabetes trended toward significance.

Patients with AKI were not at an increased risk of a prolonged hospital stay or recurrent periprosthetic infection. At an average 6 years’ follow-up, 8 patients had developed CKD, and 4 were receiving dialysis.

Two-stage exchange arthroplasty with ALBC spacer placement and intravenous or oral antibiotics is the most common treatment for periprosthetic infection after TKA. This contemporary cohort study suggests a high rate of AKI among patients undergoing this treatment, particularly those with pre-existing CKD.

Risk factors for AKI include indicators of reduced blood flow to the kidneys as well as high concentrations of vancomycin or aminoglycosides used in the spacers. The researchers add, “[W]hile higher antibiotic doses in ALBC spacers can lead to AKI, these doses are also a crucial factor for infection eradication” [Dagneaux L, et al. Acute kidney injury when treating infected total knee arthroplasties with antibiotic-loaded spacers: Incidence, risks, and outcomes. *J Bone Joint Surg Am*, published online ahead of print March 29, 2021. doi: 10.2106/JBJS.20.01825; [https://journals.lww.com/jbjsjournal/Abstract/9900/Acute\\_Kidney\\_Injury\\_When\\_Treating\\_Periprosthetic.185.aspx](https://journals.lww.com/jbjsjournal/Abstract/9900/Acute_Kidney_Injury_When_Treating_Periprosthetic.185.aspx)]. ■

## How Long Do SARS-CoV-2 Antibodies Last in Dialysis Patients?

Nearly all dialysis patients infected with SARS-CoV-2 show sustained immune responses through 6 months’ follow-up, according to a pre-proof paper in *Kidney International*.

The researchers screened for two types of SARS-CoV-2 antibodies in a cohort of 356 patients receiving hemodialysis at two UK dialysis centers. Specifically, samples were tested for antibodies to the nucleocapsid protein (anti-NP) and the receptor binding domain (anti-RBD) of the spike protein. Durability and functionality of immune responses to SARS-CoV-2 were assessed over time.

At initial screening, 38% of dialysis patients tested positive for one or both types of SARS-CoV-2 antibodies. Most patients (127 of 136) were positive for both anti-NP and anti-RBD. Two patients were positive for anti-NP but negative for anti-RBD, whereas 7 patients showed the opposite pattern.

At 6 months’ follow-up in 301 patients, 64% were still positive for anti-NP and 85% for anti-RBD. Cellular immune responses were tested in 10 patients whose antibody responses had waned: 8 had detectable T cell responses.

Of the original 192 patients who were positive for anti-NP, 97% had persistent serologic or cellular immune responses

at 6 months—even those with mild or asymptomatic SARS-CoV-2 infection. On assessment of clinical outcomes, patients who initially tested positive for SARS-CoV-2 antibodies were less likely to have polymerase chain reaction-positive infection, regardless of their 6-month antibody status.

Dialysis patients have high rates of SARS-CoV-2 infection with a high risk of poor outcomes. In this cohort study, close to 40% of in-center hemodialysis patients tested positive for SARS-CoV-2 antibodies.

Most patients remain antibody positive for 6 months, and nearly all have evidence of humoral or cellular immunity associated with reduced risk of subsequent SARS-CoV-2 infection. “Together, these data suggest that immune responses post-infection may be protective against reinfection,” the investigators conclude [Clarke CL, et al. Longevity of SARS-CoV-2 immune responses in hemodialysis patients and protection against reinfection. *Kidney Int*, published online ahead of print March 24, 2021. doi: 10.1016/j.kint.2021.03.009; [https://www.kidney-international.org/article/S0085-2538\(21\)00295-7/full-text](https://www.kidney-international.org/article/S0085-2538(21)00295-7/full-text)]. ■