Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

in Singapore, with a 20-station inpatient dialysis center, a large renal inpatient service, and a renal transplant program. Universal masking and visitor screening were implemented[4]; symptomatic patients were segregated in a dedicated dialysis room, with staff using personal protective equipment. All symptomatic inpatients were tested for SARS-CoV-2 and common RVIs via multiplex polymerase chain reaction.

The incidence of HA-RVI during the pandemic dramatically decreased to 0.5 cases per 1000 admissions (1 case, 2186 admissions), compared with 21.7 cases per 1000 admissions (70 cases, 3223 admissions) over the previous 2 years (incidence rate ratio, 0.02; 95% confidence interval, 0.001–0.13; $P < 0.001$). Notably, zero episodes of HA-RVI were recorded from February to December 2020 (Figure 1). There was no significant difference in the proportion of inpatients tested for common RVIs (26.5%, 581 of 2186 admissions tested during the pandemic; vs. 28.8%, 929 of 3223 admissions tested prepandemic; odds ratio, 0.89; 95% confidence interval, 0.77–1.08; $P = 0.07$). Despite managing ≥1600 COVID-19 cases, there was no nosocomial acquisition. Infection prevention measures introduced for COVID-19 mitigate HA-RVI among renal inpatients and should be continued postpandemic.

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As this study utilized aggregated anonymized data collected as part of routine surveillance, waiver of informed consent was obtained from our hospital's institutional review board.

AUTHOR CONTRIBUTIONS

WLE conceived and designed the study. WLE and EPC analyzed the data. WLE, CST, and IV drafted the manuscript. CST and IV supervised.

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Answering the call to action: rapid implementation of an in-center hemodialysis SARS-CoV-2 vaccination program

To the editor: The coronavirus pandemic resulted in devastatingly high rates of infection and mortality (up to 20% and 32%, respectively) for patients receiving in-center hemodialysis (ICHD).[1] The arrival of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) vaccines was anxiously awaited. Large trials reported vaccine efficacy of 62% to 95%.[2,3] Data from other vaccines suggested benefit in kidney patients, despite attenuated immune responses.[4] Given the devastating toll of coronavirus disease 2019 (COVID-19), and the kidney community's call to action,[1] we advocated for urgent provision of SARS-CoV-2 vaccines for patients receiving ICHD.

Patients receiving ICHD spend significant time on and traveling to dialysis; it is unfair and impractical for them to attend vaccination hubs separate from dialysis. A vaccine delivery group was formed to coordinate procurement, logistics, and delivery of SARS-CoV-2 vaccines on dialysis. This group comprised volunteers (nephrologists, nurses, and pharmacists) undertaking this work in addition to their clinical responsibilities. Each vaccinator completed mandatory vaccination e-Learning.

The Joint Committee on Vaccination and Immunisation granted permission to vaccinate a cohort of patients receiving ICHD ahead of the government schedule, provided we measured their immune responses. Once a limited number of vaccines were sourced from a community vaccination hub adjacent to a satellite dialysis center, the vaccine roll-out was piloted. Twenty-four hours later, the vaccination team assembled in the selected satellite dialysis unit and offered the vaccine to all patients attending the morning, afternoon, and twilight shifts. Crucially patients had already received verbal and written vaccine information. All patients were seen by a pair of vaccinators. Patients were screened for the presence of COVID-19 symptoms, receipt of other vaccines in the preceding 7 days, allergies, use of anticoagulants, pregnancy, and previous SARS-CoV-2 vaccination. A concerted effort was made to avoid vaccine wastage. Vaccines were administered while the patients were on the dialysis machine. As most patients had anticoagulation on dialysis, pressure was applied to the injection site for 2 minutes and patients were

monitored for bleeding. There were no immediate adverse events.

Buoyed by the success of the pilot vaccination day, we extended the program to the rest of our dialysis population. We care for approximately 1500 patients on ICHD across 9 hemodialysis centers, and a vaccine was offered to all patients in these centers. The vaccine type (Pfizer or AstraZeneca), source (local primary care network or hospital trust), and plan for delivery was tailored to suit each center. Vaccine reconstitution and controlled release were carried out by on-site pharmacists or by trained members of the volunteer group. In one satellite unit, the nurse in charge escorted patients to the adjacent vaccination hub before or after their dialysis session. In the remaining units, the volunteer team carried out vaccinations following the processes just detailed. Initially, the vaccines used at the in-hospital hemodialysis unit were surplus doses from the staff vaccination hub. When vaccine was available, suitable patients were identified, consented, and vaccinated on dialysis. Soon we were allocated vaccine supply. Suitable inpatients were vaccinated with surplus doses.

Two recurrent problems became apparent: inconsistent vaccine supply and surplus doses. These were intrinsically linked as the lack of advance knowledge about vaccine availability hindered our ability to plan and invite patients for vaccination. In anticipation of surplus doses, a reserve list of patients able to travel at short notice was prepared. A third challenge was vaccine hesitancy. Patients expressed concerns pertaining to the speed of vaccine development and conspiracy theories related to 5G and Bill Gates. However, following discussion with trusted members of staff, <5% declined the vaccine when offered it and most were hugely grateful and relieved to receive it.

Through excellent organization, communication, perseverance, and voluntary teamwork, we were able to offer the vaccine to all ∼1500 patients on ICHD within 16 days of them being included in the vaccine priority schedule.

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The vaccination program could not have happened without the massive input from numerous volunteers, often out of hours, from so many staff within the Imperial Renal and Transplant Centre at Imperial College Healthcare NHS Trust, and we are hugely indebted to them. We could never have started that first week without the generous supply of vaccine facilitated and delivered by Dr. Genevieve Small (North West London [NWL] Clinical Commissioning Group [CCG] lead), Pippa Nightingale (NWL secondary care lead), Dr. Naomi Katz, and Anne-Marie McCooey. We had enormous support across the various sites from local pharmacists, health care centers, COVID-19 vaccination hubs, and CCG leads.

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Medullary tophi: multiple microscopic lesions can amount to significant renal damage

To the editor: We read with great interest the study of Bardin *et al.*, who found an association between long-standing untreated gout and medullary echogenicity, likely due to urate deposition.[1] The linked commentary highlights the controversy regarding the pathogenetic role of gout in kidney damage and chronic kidney disease (CKD).[2] The role of asymptomatic hyperuricemia remains unclear, but a recent study suggests that hyperuricemia with crystal deposition determines progression to CKD.[3] A retrospective

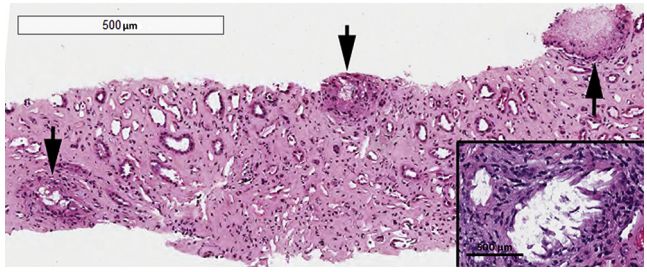

Figure 1 | Multiple gouty microtophi (arrows) incidentally found in the medulla of a hyperuricemic patient biopsied for proteinuria. These tubulointerstitial lesions are characterized by clear, feathery central areas (mostly dissolved uric acid crystals) with peripheral reactive inflammatory changes. The destructive, inflammatory reaction is better appreciated in the inset. To optimize viewing of this image, please see the online version of this article at www.kidney-international.org/.