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Removal of Race from Estimated Glomerular Filtration Rate Calculations: Implications for the Emergency Department

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Dear Editor,

In 2020, the American College of Emergency Physicians released a "Statement on Structural Racism and Public Health," promoting diversity, equity and inclusion within our specialty[1]. As emergency medicine physicians, we must advocate for our patients and seek to eliminate practices that introduce bias into patient care.

Historically, equations used to calculate estimated glomerular filtration rate (eGFR) have included race as a parameter[2]. However, these equations were derived using study populations that predominantly self-identified as White, and later research found these equations to consistently overestimate eGFR in Black patients[2]. As social norms have evolved, the concept of race as a social construct has become more widely accepted, and research shows that including race in eGFR calculations hinders individuals who identify as Black from receiving appropriate care[2]. For these reasons, the National Kidney Foundation and the American Society of Nephrology now endorse the use of the 2021 Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equation or the 2021 EPI eGFR- creatinine-cystatin C equation, both of which omit the race variable[2, 3]. In the emergency department (ED), calculating an accurate eGFR is important for safe medication dosing and helps inform the decision to use iodinated contrast in patients with chronic kidney disease (CKD).

Although creatinine clearance (CrCl) is used for dosing of many medications, eGFR-derived clearance can also be used to guide medication dosing[4]. Calculating eGFR is important when ordering renally-cleared medications such as morphine, gabapentin, enoxaparin, non-steroidal anti-inflammatory drugs, insulin, magnesium-containing antacids, colchicine, and digoxin. Additionally, accurate eGFR calculations can help inform safe antimicrobial use in septic patients, especially for medications such as aminoglycosides, vancomycin, cephalosporins,

carbapenems, fluoroquinolones, nitrofurantoin, and acyclovir. Due to nationwide issues with long ED boarding, ED providers are increasingly being asked to provide more than just an initial dose of medications and to resume patients' home medications while they await admission orders and inpatient bed assignments. Thus, it is increasingly important that ED providers correctly calculate eGFR to guide medication orders. If eGFR is calculated using equations that incorporate race, then Black patients are likely to receive inappropriate doses of these medications, which can have negative clinical implications[2].

In 2020, the American College of Radiology and the National Kidney Foundation released a consensus statement regarding use of intravenous iodinated contrast media in patients with CKD[5]. While the true risk of contrast-induced AKI remains controversial, these guidelines recommend prophylactic volume expansion to protect against AKI prior to contrast administration in patients with an eGFR less than 30 mL/min/1.73 m^2, who are not undergoing maintenance hemodialysis and who have no contraindication to fluid administration[5]. If eGFR equations that incorporate race are used in Black patients, their eGFR may be overestimated and they may not receive prophylactic volume expansion to protect against AKI.

As ED providers, we must understand which equations are being used to calculate eGFR in our EDs and encourage widespread adoption of eGFR equations that omit race, to ensure we are providing high-quality, equitable care to ED patients of all racial and ethnic backgrounds.

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