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Comparison of Scheduled vs Emergency-Only Dialysis in Undocumented Immigrants With End-stage Renal Disease—Reply

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develop methods of clinical trial data sharing, from Medtronic and the US Food and Drug Administration to develop methods for postmarket surveillance of medical devices, and from the Centers for Medicare & Medicaid Services to develop and maintain hospital performance measures that are used for public reporting; he also chairs a cardiac scientific advisory board for UnitedHealth, is on the advisory board for Element Science, is a participant/participant representative of the IBM Watson health life sciences board, is on the physician advisory board for Aetna, and is the founder of Hugo, a personal health information platform. No other disclosures are reported.

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Comparison of Scheduled vs Emergency-Only Dialysis in Undocumented Immigrants With End-stage Renal Disease

To the Editor We read with great interest the recent Original Investigation by Nguyen and colleagues.[1] Emergency-only dialysis strategy is used to treat life-threatening manifestations of end-stage renal disease (ESRD) in undocumented immigrants with no access to scheduled dialysis without health insurance and is only used in France for the duration of a tourist visa (maximum, 90 days). This situation represents ethical dilemmas for clinicians and is common in Europe where immigrants represent about 1.5% of the dialysis population.[2] This important study contributes to the management of undocumented immigrants with ESRD by reporting significant differences in health and economic outcomes in favor of a scheduled dialysis strategy. We further comment on the study design and method for the costs analysis, as well as their potential influence on the findings.

Nguyen and colleagues[1] used a retrospective intention-to-treat analysis to compare the 2 strategies. We suggest that the survival analysis at 12 months should take into account the subsequent enrollment after 9 months in the competitive strategy during the follow-up period (November 1, 2015, to January 31, 2016) as a competing risk. Furthermore, supportive treatment, defined as the active total care of patients and consisting of not only dialysis therapy (eg, blood transfusion, use of erythropoietin, iron therapy), but also support for other complications like psychological and social issues, is not provided and may influence survival independently of the dialysis strategy.

The authors acknowledge that most outpatient costs were not included in the analysis. Nevertheless, we can assume that those costs may be highly different, and omitting them leads to underestimation of the real outcome of each strategy on ESRD management costs.[2] Beyond the choice of costs considered in the analysis, during the wait for scheduled dialysis care, complication-related ESRD continues to increase, and the patient's deterioration then requires additional inpatient care, thus escalating costs. This may explain the lower cost difference-in-differences for the scheduled strategy, where patients had a higher median emergency-only dialysis vintage (24 vs 17 months) before inclusion. In our opinion, this may have significantly affected the strategies-related costs. Last but not least, the comparability of the groups is challenged by missing comorbidity data, time from ESRD onset to dialysis therapy, and details about social conditions that might significantly influence strategy-related costs and survival analysis.

Finally, we fully agree with the authors that emergency-only dialysis should not be considered as an alternative for patients with ESRD from both a medico-economic and an ethical point of view.

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Conflict of Interest Disclosures: None reported.

1. Nguyen OK, Vazquez MA, Charles L, et al. Association of scheduled vs emergency-only dialysis with health outcomes and costs in undocumented immigrants with end-stage renal disease. *JAMA Intern Med*. 2019;179(2):175-183. doi:10.1001/jamainternmed.2018.5866

2. Van Biesen W, Vanholder R, Vanderhaegen B, et al. Renal replacement therapy for refugees with end-stage kidney disease: an international survey of the nephrological community. *Kidney Int Suppl (2011)*. 2016;6(2):35-41. doi:10.1016/j.kisu.2016.09.001

In Reply We commend Godefroy and colleagues for making the case for providing scheduled dialysis for undocumented immigrants with end-stage renal disease (ESRD) in Europe, an issue likely to be exacerbated by recent migrant and refugee crises. Herein, we address their concerns with our article[1] regarding the lack of competing risks in the survival analysis, incomplete accounting for outpatient care and costs, and longer emergency-only dialysis vintage at baseline among the scheduled dialysis group.

We were unable to perform a competing risk analysis for survival because we did not have precise enrollment dates during the second enrollment period. Nonetheless, the mortality benefit of scheduled dialysis is likely larger than what we found in our intention-to-treat analysis because 96% of the remaining individuals in the emergency group crossed over into scheduled dialysis, which would attenuate mortality differences between groups.

Although we acknowledged that we were unable to account for outpatient care and costs, particularly in the scheduled dialysis group, it is important to note that outpatient costs are minimal relative to emergency-, inpatient-, and dialysis-related costs, and that the emergency-only group also had potential access to outpatient care through the integrated

safety-net health system in which they were receiving dialysis. For the emergency-only group, the main challenge to accessing outpatient care was the substantial time individuals spent on a weekly basis awaiting evaluation and potential receipt of emergency-only dialysis in the hospital emergency department, as well as frequent hospitalizations for complications. Thus, scheduled dialysis permitted individuals to seek and receive outpatient care in a more predictable manner. Additionally, concern for missing data on psychosocial factors and other unmeasured confounders is mitigated by our difference-in-differences quasiexperimental study design, as each individual served as their own control in this analytic approach.

Lastly, we agree that the longer individuals remain on emergency-only dialysis, the greater their illness severity and potential costs accrued are. The scheduled dialysis group had higher baseline costs and more frequent need for emergent dialysis (suggestive of greater ESRD severity), but similar hospitalizations and fewer hospital days at baseline compared with the emergency-only group. This suggests a greater need for emergency dialysis but not necessarily a higher rate of inpatient care in the scheduled dialysis group. Regardless, we believe our findings strongly support a strategy of initiating scheduled dialysis as soon as possible—the longer treatment is withheld, the greater the risk of death, hospitalizations, and higher acute care costs.

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Analyze Patient Tests for Importance Before Ordering

To the Editor In a recent Editor's Note,[1] Dr Redberg responded to an analysis of test-ordering habits among internal medicine residents[2] with the laudable comment: "Residency is the perfect time to think clearly and deeply what can be learned from each potential test and to order only those tests that will affect the care of the patient."[1(p1721)] However, she does not describe that learning process. I propose, in this era of evidence-based medicine, empiricism (in the modern sense) based on inductive logic, is the primary methodology to do so. Data gathered from experience and experiment allow the formation of theories and guide future activities.

During my neurology residency from 1969 to 1972 at the Mount Sinai Hospital in New York City, my coresidents and I noticed that many attending neurologists routinely ordered electroencephalograms for patients with headaches. When we approached the head of the electroencephalography laboratory, Robert Jaffe, MD, about the use of electroencephalograms in the average patient with headaches, rather than provide a blanket answer, he suggested we prospectively study its significance in 100 consecutive patients with headaches; we did and found no benefit. This was a transformative moment for me, and I applied that approach in my practice thereafter.

For instance, as a neuromuscular specialist, I evaluated many patients with diabetic polyneuropathy. Early in my career I performed nerve conduction studies on many of these patients. Over time I came to realize that nerve conduction studies offered little benefit over the clinical examination, with few exceptions, and I stopped doing them routinely. Furthermore, after discovering patients with serious nerve injuries following routine venipuncture,[3] I gave greater consideration to ordering fewer blood studies and bundling more of them together.

One solution to the overuse of diagnostic testing is to use Dr Jaffe's teachable moment—have house-staff officers analyze the benefits of each test ordered with each patient's particular clinical condition in mind under the supervision of an experienced teacher/clinician. This learning experience should have an indelible effect on a physician's future medical practice, the "imprinting" referred to by Geleris and colleagues.[2]

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2. Geleris JD, Shih G, Logio L. Analysis of diagnostic test ordering habits among internal medicine residents. *JAMA Intern Med*. 2018;178(12):1719-1721. doi:10.1001/jamainternmed.2018.3519

3. Horowitz SH. What happens when cutaneous nerves are injured during venipuncture? *Muscle Nerve*. 2005;31(4):415-417. doi:10.1002/mus.20287

To the Editor We read with interest the Research Letter by Geleris and colleagues[1] discussing the laboratory and radiographic ordering habits of their internal medicine residents. Current literature suggests a correlation between where a physician trains and how they practice medicine. For example, location of residency training is correlated with how American Board of Internal Medicine examinees answer high-value care questions.[2] Geographic location of training also correlates to variable costs of care of practicing internists based on Medicare claims data.[3] We, therefore, would expect ordering habits to be relatively homogenous within a single residency program; however, the residents studied by Geleris and colleagues demonstrate widely variable ordering practices. This variation within a single residency program suggests that factors beyond training location influence resident practice patterns.

We cannot continue the current staggering cost of health care. Today's residents are the future of health care, and the training they receive now will not only affect their practice patterns, it will also influence their future trainees. To effectively