In their article, Ravani et al. describe the results of a population-based cohort study that used provincial laboratory and administrative data from Alberta, Canada, demonstrating systematic differences in the risks of kidney failure and death across age groups among adults with a severe decrease in estimated glomerular filtration rate (eGFR). Cohort members younger than 65 years were more likely to develop kidney failure than to die, whereas the reverse was true at older ages. Strikingly, the risk of death was 6-fold higher than the risk of kidney failure for those aged 75 to 85 years and 24-fold higher than that of kidney failure for those aged ≥85 years. Although the absolute and relative risks of death and kidney failure also varied by sex, presence or absence of diabetes and cardiovascular disease, and level of albuminuria, marked differences in the relative frequency of death and kidney failure across age groups persisted in all subgroups examined by Ravani et al.

These results add depth to earlier studies that described systematic differences in the relative and absolute risks of death and end-stage renal disease across a wider eGFR spectrum. A novel feature of the study by Ravani et al. compared with these earlier studies is that it defined kidney failure broadly to include individuals who reached the advanced stages of disease regardless of whether they were treated with dialysis. As shown in eFigures 3 and 4 of the article’s online Supplement, uptake of dialysis among cohort members with kidney failure also varied substantially across age groups, with a relatively lower proportion of people receiving treatment with dialysis at older ages.

As Ravani et al. point out, the presence of large systematic age differences in the association between eGFR and risks of kidney failure and death have important implications for care and treatment both at a population level and individual level. The greater likelihood that older adults with severely reduced eGFR will die with rather than from their kidney disease can inform policy and resource planning. This information can also help people with kidney disease to establish treatment goals and life priorities as their illness progresses.

In light of such striking systematic age differences in the association between eGFR and risks of kidney failure and death, some might be surprised to learn that the model that underpins contemporary US clinical practice guidelines for chronic kidney disease makes no accommodation for patient age. Among nephrologists, a matter of ongoing debate for some time now has been whether age should be factored into how patients with kidney disease are identified and classified. Opponents of an age-neutral approach cite the marked differences in the association between eGFR and key clinical outcomes across age groups. They argue that the use of a single arbitrary eGFR threshold (60 mL/min/1.73 m²) to define kidney disease serves to artificially inflate the size of the population considered to have this condition (by mislabeling a large number of older adults with isolated moderate decreases in eGFR as having a disease that they likely do not have) and does not capture at-risk younger adults.

While acknowledging the importance of age as an effect modifier, proponents of the current age-neutral approach dismiss these concerns as semantic and point out that lower levels of eGFR and higher levels of proteinuria are associated with adverse outcomes in patients of all ages. They opine that “an age-adapted definition of CKD [chronic kidney disease] will not work” because it would be too complicated and limit progress.
In some ways the proponents of an age-neutral approach have a point. Models are meant to be pragmatic and to simplify rather than replicate or complicate reality. One of the first models I encountered (as an undergraduate) was the Burgess and Hoyt concentric zone model of the city. What I remember about the model all of these years later is the notion that the typical city has a central business district that is separated from the surrounding inner and outer suburbs by a zone in transition. Like all models, the Burgess and Hoyt model was wrong by design in that its purpose was not to capture the complexity and uniqueness of individual cities but to distill the common features shared across multiple different cities. To this day, I still pay attention to the ways in which each new city that I set foot in conforms with and deviates from the Burgess and Hoyt model. By presenting a simplified version of reality, the model has helped me to appreciate both the similarities and the differences between the various cities I have visited over the years.

However, not all models are useful. The findings of Ravani et al2 confirm my own clinical sense that an age-neutral model of kidney disease is not adequately equipped to support decision-making and discussions with patients and families in real-world settings. For patients with an eGFR of 15 to 30 mL/min/1.73 m² (the topic of the article), current guidelines recommend managing the complications of advanced kidney disease and planning for future treatment in the form of kidney transplant, dialysis, and/or (increasingly) conservative care without dialysis. However, the marked age differences in the absolute and relative risks of death and kidney failure that Ravani et al2 describe among cohort members probably call for a more nuanced approach.

Before finalizing this commentary, I did an online search for “Burgess and Hoyt” to review the model. The search results provided a brief summary of the model and its limitations, which included that there is no such thing as a typical city. By analogy, no matter how carefully and narrowly we define the risk group, we should not assume that there is such a thing as a typical patient. Not only is there usually substantial uncertainty around risk estimates for a given outcome in individual patients, but there is also tremendous heterogeneity in health status, illness trajectories, circumstances, lived experiences, and values among patients of the same age with the same level of eGFR and/or those with similar risk for a given outcome.

The models that may prove most useful in supporting the care of patients with kidney disease (or any other condition) are those that can help bridge the gap between the seemingly contradictory goals of caring for “patients like this” and caring for “this patient,” which is so brilliantly articulated by endocrinologist Victor Montori.7(p1) A useful model would provide relevant empirical information from reasonably similar patients while offering insights into the ways in which each patient might be different and how we might uphold what is most important to that patient.

ARTICLE INFORMATION
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REFERENCES
6. Levey AS, Inker LA, Coresh J. “Should the definition of CKD be changed to include age-adapted GFR criteria?”. Con: the evaluation and management of CKD, not the definition, should be age-adapted. Kidney Int. 2020;97(1):37-40. doi:10.1016/j.kint.2019.08.032