means of aligning with the principles of sustainability mandated by climate and sanitary crises. This approach may be useful not only in low-income countries but also in rich ones, where economic and environmental challenges should encourage frugality. ■

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Reply to: Gaudry *et al.*

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From the Authors:

We fully agree that frugal innovation should not be restricted to mechanical ventilation but is intended to cover all aspects of organ support (e.g., hemodynamic support, renal replacement therapy [RRT], etc.) and patient management (e.g., monitoring, drugs, etc.) in ICUs (1). We focused on mechanical ventilation in our article (2) for the sake of clarity and because it was difficult to cover all aspects of patient's care.

There is no doubt that intermittent RRT (IRRT) is better suited, in terms of logistics, to deal with a potential surge of patients suffering from acute kidney injury (AKI) than continuous RRT (CRRT), as emphasized by Gaudry *et al.* In addition, IRRT allows a significant reduction in healthcare costs in terms of material and nursing time without impeding the quality-adjusted life years, compared with CRRT. This may be important not only in the setting of disaster nephrology (3) but also in the current context of sustained increased costs of critical care. From a frugal perspective, it is also essential to prevent and delay the need for RRT in patients with AKI. Regarding the former, the use of sodium bicarbonate for the management of severe metabolic acidemia seems encouraging and should be further validated (clinicaltrials.gov: NCT04010630); regarding the latter, it is important to recall that patients with a delayed-RRT strategy in the STARRT-AKI (Standard versus Accelerated Initiation of Renal-Replacement Therapy in Acute Kidney Injury) trial were also less dependent on RRT at Day 90 than their counterparts, supporting the concept of artificial kidney–induced kidney injury.

Last, a major constraint for IRRT is the lack of facilities in and outside ICUs (4). For example, reverse-osmosis water systems enabling the production of pure hemodialysate are not the standard in the majority of hospitals worldwide and are often of suboptimal microbiological quality (5). In this context, there is a need for frugal innovation to optimize new solutions like home dialysis generators (which allow for the recycling of water for genesis of pure dialysate with a reduced footprint and cost) (3) or accelerated or intermittent hemo(dia)filtration protocols with CRRT monitors (combining some advantages of IRRT [limited duration] and CRRT [no need for an osmosis water system]) (6).

Obviously, the entire management of critically ill patients should be questioned in terms of frugality, given the economic, environmental, and societal challenges that humanity is currently facing. ■

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