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State of the Art Fluid Management in Critically Ill Patients

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Fluids are the most common aspect of daily management in critically ill patients and have been so even before intensive care units came into existence. The broad topic of “fluids” involves intravenous fluid volume, fluid composition, timing of fluid administration, sources of fluid intake and output and methods to monitor these sources, targets for fluid administration and elimination, and a large number of other factors. Inherently it also involves the entire multidisciplinary team of critical care providers in order to assess the previous events, the current status, and to make future plans related to fluid therapy. Although bedside nurses are the central repository of much of the fluid-related data, full assessment and treatment decisions rely upon respiratory therapists, physical and occupational therapists, dietitians and nutritional support specialists, and critical care providers whether they be physicians or directed affiliate providers (i.e. nurse practitioners, physician assistants, and similar). Integrating the entirety of information for optimal patient care decision making is complex and is made more difficult by the ongoing evolution in clinical evidence for managing fluid therapy and fluid balance in critically ill patients.

In this issue of *Current Opinion in Critical Care*, we have a broad discussion covering these aspects of fluids in critically ill patients, spanning fluid types and various clinical conditions. One major area of new understanding in the past few years is fluid composition and how it influences distribution in the body, organ function and even survival in critically ill patients. In this issue, experts provide an update on our understanding of fluid composition and how we might conceive the ideal intravenous fluid solution. We also delve into the pharmacoeconomics of fluid therapy in critically ill patients – a complex but important topic given the interaction between acquisition costs, administration to the proper patients, and beneficial or detrimental effects on clinical outcomes that influence resource utilization. Finally, we have state-of-the-art updates on fluid management in common clinical conditions such as sepsis, peri-operatives states for general surgery, traumatically injured patients, and other conditions.

Aside from the rapidly evolving evidence for fluid management in critically ill patients, given the heterogeneity of clinical conditions, fluid measurements and goals, and even fluids themselves, it is impossible to discuss the entire spectrum of new information involving fluids. Other topics such as measuring and monitoring fluid therapy and “de-resuscitation” from fluid therapy have been covered elsewhere and will be updated over time given the spate of new tools and clinical studies that are continuing in this field. And furthermore, although we have attempted to integrate evidence where possible, the nature of critical care makes clinical intuition and subjective judgment necessary to deliver the right fluid to the right patient at the right time. The timeliness of the material in this issue is exceptional, and

not only describes the current state-of-the-art for fluid therapy, but it also lays the foundation for future methods to optimize aspects of fluid therapy in critically ill patients.

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