Sprung et al (26) went further by investigating the feasibility of using a triage score to assist in deciding about ICU admissions. The score incorporated age; diagnosis; systolic blood pressure; pulse; respiratory rate; Pao_2; concentrations of creatinine, bilirubin, bicarbonate, and albumin; vasopressor use; Glasgow Coma Scale score; Karnofsky performance status score; operative status; and chronic disorders. The training and validation samples showed excellent discrimination (area under the receiving operating characteristic curve > 0.8). However, the tool is in its early stages, the assignment of the individual score is not simple (a computerized process), and its appropriateness for making decisions for individual patients is clearly limited pending further validation; therefore, it would be premature to introduce it in clinical practice (26). In another example, Bayraktar et al (27) evaluated a specific comorbidity index in hematopoietic stem cell transplantation patients in an effort to identify who would benefit from an ICU stay; however, the authors did not recommend denying ICU admission based on this score alone.

Several groups base admission to the ICU on severity of illness as determined by other national organization or local institutional scores (21, 28–38). Most of these tools represent the best guidance that is available, but most have only been validated locally and without high-quality data. Most have not been studied as preadmission tools, but rather in retrospective assessments. The Sequential Organ Failure Assessment (SOFA) score has been studied to evaluate outcomes in septic patients with evidence of hypoperfusion at the time of arrival to the emergency department (ED) and subsequent ICU evaluation 72 hours after admission (39). The authors showed that the SOFA score provided potentially valuable prognostic information for patients who needed ICU admission. Yet, Sinuff et al (40) have shown that 24 hours after admission, physicians predict more accurately than scoring systems whether ICU patients will survive.

Identifying the Required Level of Care. To reduced preventable cardiac arrests and late ICU admissions, several ways of providing critical care outside the ICU have been developed. In 1990, Schein et al (41) demonstrated that in-hospital cardiac arrests are preceded by detectable pathophysiologic changes associated with clinical deterioration within 8 hours of the arrest. This led to the establishment of the rapid response team, also called the "rapid response system" (RRS). These personnel, trained in critical care medicine, are dispatched when patients in general hospital wards have deteriorating conditions that might merit ICU admission. Several studies have evaluated the impact of RRS outreach care on ICU admissions (30, 42–45). Most have shown that RRSs have actually reduced ICU admission rates and mortality; however, the widespread use of RRS tools and validation of these teams are not based on robust data (45). This subject is discussed at length in *Use of Outreach Programs to Supplement ICU Care* section.

In 1999, a group of experts appointed by the Department of Health in the United Kingdom and led by Dr. Valerie Day suggested that patients in the hospital should be assigned a level of care based on an assessment of their clinical needs, regardless of their location (46). In their review of critical care services published in 2000, they described these levels as follows:

- Level 0: regular hospitalized patients with no intensive monitoring or care requirements.
- Level I: patients requiring additional monitoring such as continuous electrocardiographic monitoring.
- Level II: patients requiring more frequent monitoring and interventions, such as those with single-organ dysfunction, that cannot be provided in the previous levels.
- Level III: patients requiring life-supportive therapies, such as those with single- or multiorgan failure, which can only be provided in the ICU.

This classification removes the division between ICU and other ward services and focuses on each patient's specific monitoring and care needs. In fact, intensivists provide critical care services beyond the ICU borders; now even more with a variety of critical care outreach programs, including intermediate units, early warning systems, and medical emergency teams (47). Day and colleagues (46) clearly identified the major groups of patients regularly managed by intensivists; however, their system does not address terminal patients requiring life support and moribund patients.

Maintaining patients in flexible hospital beds can be easy if there are only monitoring needs such as electrocardiography but could create logistical problems for intensive care delivery. One possible solution is critical care outreach. In a recent ward (cluster)-randomized study of early interventions by a 24-hour outreach nurse-led team and critical care physician, Priestley et al (48) showed a significant hospital-mortality reduction for patients who received the outreach intervention, with an odds ratio (OR) of death of 0.52 (95% CI, 0.32–0.97).

Draft Tools to Aid in Patient Prioritization for ICU Admission. Acknowledging the limitations discussed above (e.g., lack of high-level evidence and validated functional admission/triage instruments), the ADT Task Force created the following tools for the use during the admission and triage processes (these tools are only offered as a framework for practical purposes, further study, and validation):

- A guide to levels of monitoring, care, and nursing ratios for bed allocation (Table 3): This tool matches the level of care the patient needs with the type of patient considered appropriate, the nursing ratios expected, and the type of interventions needed.
- An ICU admission prioritization framework based on these levels of monitoring and care requirements (Table 4): this tool provides guidance for prioritizing the patients referred to ICU for admission.

Benefits of Different Levels and Models of Critical Care

The survival benefit of critical care for different populations by age group, diagnosis, length of ICU stay, and place of treatment remains somewhat elusive (49, 50). Although ICU mortality rates are dependent on severity of illness, comorbidities,