TELE-ICU MONITORING AND CARE
Tele-ICU monitoring engages a combination of satellite-linked video conferencing equipment and robust communication links to electronic medical records to facilitate real-time, comprehensive assessment and treatment of critically ill patients in intensive care units 24 hours a day. Qualified critical care clinicians typically stationed at an off-hospital site are currently monitoring 10% of the ICU beds in the United States. The number of sites using remote monitoring has risen exponentially over the past 5 to 7 years, transcending geographical boundaries “virtually” linking critical care experts with rural hospitals, urban hospitals, medically underserved regions, disaster areas, and mobile military hospitals.

REMOTE MONITORING & CARE CAPABILITIES
The Tele-ICU team, while physically remote from the intensive care unit, remains in contact both by microphone and by video. Visualization of the patient using a maneuverable camera yields remarkable clarity and facilitates the team’s ability to consider the data they are receiving along with clinical assessment to address the patient’s rapidly changing needs. Specialty peripheral devices attached to computers or other video-conferencing equipment are sometimes used to perform interactive examinations, such as a tele-otoscope or a tele-stethoscope. Orders for procedures, medications, diagnostic studies, or other interventions are directly entered through a computerized physician order entry system, as needed. This efficiency may reduce the time to treatment and decreases the potential for human communication errors. Radiology studies, laboratory results, hemodynamic monitoring, and a multitude of other important clinical data can be considered simultaneously. In addition to the in-room audio capabilities, some hospitals offer a dedicated interface so families can talk with and see the off-site clinical team. These conversations provide that additional opportunity for discussions around a variety of issues that are of immediate concern to families.

INTEGRATION OF CLINICAL INFORMATION
The Tele-ICU team typically has access to a wide variety of patient data (link). Even in the ideal “closed” intensive care unit fully staffed with intensivists, an electronic ICU or eICU program may add another level of safety to patient care. The monitoring team is capable of providing minute-by-minute oversight, has the ability to intervene quickly if the intensivist is away at a rapid response call or is called to the emergency department, and can safeguard that evidence-based, best practice care plans are carried out. Remote electronic critical care medicine leverages the utility of a dedicated intensivist and multiple nurses to provide care to a greater number of patients in many locations. Prompts to evaluate critically ill patients occur with the assistance of advanced computer algorithms based on the clinical data available within the electronic medical record and platform. These algorithms often include multi-variable physiologic (vital signs) algorithms helping to identify clinical patterns, as well as algorithms that monitor the process of care for deviations from accepted standards. A unique feature of Tele-ICU monitoring that may make it an attractive choice from a quality standpoint is that management screening reports can be reviewed at multiple intervals each day. This type of intensive patient management can improve compliance with best practice standards and has been shown to improve patient outcomes.

STAFFING
While staffing patterns may vary, the monitoring team is typically comprised of board-certified intensivists or board-certified specialty physicians with ICU experience such as cardiologists, emergency medicine physicians, pulmonologists, or other appropriately trained physicians. Critical care nurses, and in some cases critical care pharmacists and critical care physician assistants, also serve as members of the Tele-ICU team. Working with bedside staff in the critical unit, the monitoring team can be primary responders or serve as a second set of eyes and ears checking clinical data to reveal and address gaps in care.

Content prepared 2010 SCCM TeleICU Committee