ATS issues joint statement on key issues and recommendations for critical care research

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To reduce mortality and improve patient care in the nation's ICUs, a task force formed by the Critical Care Societies Collaborative (CCSC), in conjunction with the US Critical Illness and Injury Trials Group (USCIITG) has recommended that research in the field become less fragmented and better account for patient heterogeneity and the complexity of critical illness.

The CCSC comprises the American Thoracic Society (ATS), the American Association of Critical-Care Nurses (AACN), the American College of Chest Physicians (ACCP) the Society of Critical Care Medicine (SCCM).

The task force recommendations were published in the January 1, 2012 issue of the *American Journal of Respiratory and Critical Care*.

The task force was formed because identifying common challenges and establishing priorities in the field of critical care research have proven difficult, given the broad range of stakeholders involved in the rapidly growing field.

"Critical care is one of the fastest growing areas in medicine, accounting for approximately $80 billion in healthcare expenditures in the United States annually," said the lead ATS representative on the task force, Polly Parsons, MD, chair of the Department of Medicine at the University of Vermont College of Medicine. "This enormous cost, along with the high mortality rates seen in intensive care units, point to the

urgent need for new treatments and systems of care, implementation of new research findings and identification of priorities for critical care research."

Key themes and challenges identified by the task force include the need to alter the fragmented approach to critical care research and more effectively link diverse research areas, the need to account for the complexity of critical illness and injury and patient heterogeneity in research, and the need for an enhanced clinical research infrastructure.

General principles for research priorities in critical care identified by the task force include:

- Clearer classification and separation of clinical entities in critical illness;
- Identification and testing of novel biomarkers, such as protein markers, metabolites, RNA and DNA;
- Development of improved models of critical illness and novel approaches to bench research that take into account variations in patient characteristics, care strategies and therapeutic interventions;
- Enhanced access to clinical research data; and
- Integration of new research areas, scientific disciplines and technology into the study of critical illness

Key critical care research priorities were identified in the specific areas of:

- Basic science/cellular research, including definition of factors that transform normal stress responses into critical illness;
- Translational research, including integration of studies of

mechanism and intervention and application of standardized methodology to study design;
- Clinical research, including development of methods for early recognition of acute, severe disease in patients at risk for imminent deterioration and improved organ support techniques;
- Health service and delivery research, including improved mechanisms for knowledge transfer; and
- Education research, including the incorporation of other disciplines and the use of simulation.

In addition to these areas, the task force recommended process improvements in:

- Research environment, including improvements in the infrastructure of research facilities and greater interdisciplinary collaboration;
- Preclinical modeling to more fully capture data on the wide range and severity of critical care conditions;
- The characterization of both individual patients and patient cohorts;
- Regulatory challenges, including improvements in consent procedures for critical care patients;
- Research networks, including expansion of existing multidisciplinary networks;
- Funding to encourage increased collaboration across funding sources to ensure adequate support for critical care research, which crosses disease- and age-specific boundaries.

Dr. Parsons noted that the increasing demand for resources in response to outcome challenges has created a need for greater investment in critical care research. "These recommendations will help facilitate the progress of research across the spectrum of critical care," she said.

"Their implementation will require new initiatives, shifts in national research priorities and enhanced cooperation within the critical care community. The agenda for critical care research outlined in these recommendations provides a blueprint for future initiatives."

More information: To read the article in full, please visit ajrccm.atsjournals.org/content/185/1/96.abstract

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