Physical therapy in the intensive care unit benefits hospital's bottom line

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In a study evaluating the financial impact of providing early physical therapy for intensive care patients, researchers at Johns Hopkins found that the up-front costs are outweighed by the financial savings generated by earlier discharges from the intensive care unit and shorter hospital stays overall. An article describing the findings, "ICU Early Physical Rehabilitation Programs: Financial Modeling of Cost Savings," is published online today ahead of print in the March issue of *Critical Care Medicine*.

"The evidence is growing that providing early physical and occupational therapy for intensive care patients—even when they are on life support—leads to better outcomes. Patients are stronger and more able to care for themselves when they are discharged," says Dale M. Needham, M.D., Ph.D., an associate professor of medicine and critical care specialist at the Johns Hopkins University School of Medicine and senior author of the study.

Needham says a major barrier to early rehab programs in the ICU has been concern among hospital administrators about the cost. "However, our study shows that a relatively low investment up front can produce a significant overall reduction in the cost of hospital care for these patients," Needham says. "Such programs are an example of how we can save money and improve care at the same time."

For the study, the researchers developed a financial model based on actual experience at The Johns Hopkins Hospital's medical intensive care

unit (MICU), as well as on projections for hospitals of different sizes with variable lengths of stay.

The Johns Hopkins MICU admits about 900 patients each year. In 2008, the hospital created an early rehabilitation program with dedicated physical and occupational therapists, which added about $358,000 to the cost of care annually. However, by 2009, the length of stay in the MICU had decreased an average of 23 percent, down from six-and-a-half days to five days, while the time spent by those same patients as they transitioned to less-intensive hospital units fell 18 percent. Using their financial model, the authors estimated a net cost saving for the hospital of about $818,000 per year, even after factoring in the up-front costs.

The researchers then analyzed the potential impact of early rehabilitation services in 24 different scenarios, accounting for variations in the number of ICU admissions, cost savings per day and reductions in length of stay.

"We were very conservative in creating the financial model to avoid overstating the potential net cost savings," says Robert Lord, A.B., lead author of the study. "We found that in 20 out of the 24 scenarios, hospitals would have an overall cost savings by providing early rehabilitation to their intensive care unit patients, and in the four remaining scenarios, using the most conservative assumptions, there was a modest net cost increase of up to $88,000 per year," adds Lord.

Needham says their financial model can serve as a resource for hospitals throughout the United States to estimate their own net cost impact for providing early physical rehabilitation to ICU patients. He says length of stay is the biggest driver of cost to a hospital, which typically gets paid a fixed amount for caring for patients with specific diagnoses.

"The bottom line is that early rehabilitation in the ICU helps patients

play an active role in their recovery and can make a big difference in their quality of life when they leave the hospital," says Needham. "More patients are surviving their ICU stay than ever before, yet many lose muscle strength during treatment for a critical illness because of long periods of bed rest." Early rehabilitation therapy, he says, can prevent muscle weakness that impairs patients' ability to care for themselves after hospital discharge.

The researchers conclude that with their conservative projections, investment in early rehabilitation for ICU patients can generate substantial net cost savings for hospitals while improving patient outcomes.

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