

Systematic early rehabilitation in adult, mechanically ventilated intensive care patients



Report of the Appraisal Committee of the Swiss Medical Board

Executive Summary

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Executive summary

Prolonged stays in the intensive care unit (ICU) are associated with functional impairment, increased morbidity, and reduced quality of life (QoL) in survivors. Early rehabilitation, beginning in the ICU, may reduce these morbidities and improve patient outcomes. In recent years, rehabilitation during an ICU stay has been widely introduced, but evidence of conclusive benefit remains controversial while associated potential harms and costs have not been well described.

The Swiss Medical Board (SMB) assessed whether systematic early rehabilitation versus less systematic early, late, or no rehabilitation delivered to patients in ICUs is associated with better patient-relevant outcomes and/or is cost-effective. The assessment was based on standard methods for systematic reviews and health economic analysis supplemented by a cross-sectional survey among leaders of Swiss ICUs. Based on this assessment, the present Appraisal Report was drafted using the Evidence-to-Decision (EtD) framework.

The systematic review included 12 randomized, controlled trials (RCTs) in a total of 1304 patients. Most studies reported outcomes limited to the time of discharge from ICU or hospital. Overall, there was minimal or no evidence of a benefit or meaningful clinical relevance of systematic early rehabilitation versus less systematic early rehabilitation. However, systematic early rehabilitation may be more beneficial than late rehabilitation. Results of the cross-sectional survey among Swiss ICU leaders illustrated significant heterogeneity of practice regarding early rehabilitation in the ICUs. This echoes the uncertainties highlighted by the systematic review.

The Appraisal Committee concluded that the differences in both desirable and undesirable effects of systematic early rehabilitation were small. Overall, the level of evidence was low. Major sources of potential bias included impossibility of blinding, lack of complete reporting of relevant dimensions, lack of predefined protocols, high variability in interventions delivered, and inconsistency in reporting between outcomes and protocols. The Appraisal Committee concluded that the balance between desirable and undesirable effects of systematic early rehabilitation in the ICU could not be determined. Both benefits and harms appear to be small and have little overall clinical relevance. However, the relative benefits and harms of the various rehabilitation interventions in specific patient subgroups are unknown.

The health economic analysis included a *de novo* cost analysis and a budget impact analysis. Both analyses were limited by the lack of available data. The Appraisal Committee determined that the resources required to deliver systematic early rehabilitation and the potential cost savings are likely to be small relative to total ICU hospitalization costs, although robust data are lacking. The Appraisal Committee concluded that these resource requirements favored neither the intervention nor the comparator for outcomes assessed at hospital discharge. Longer-term cost-benefit implications are unknown.

The Appraisal Committee concluded that early rehabilitation may be valued variably by different stakeholders, while improved outcomes post-ICU would clearly be valued by patients. The Appraisal Committee deemed early rehabilitation in the ICU to be both acceptable and feasible in Switzerland. There was no major concern with respect to health equity. Based on the limited and low-quality evidence available, the Appraisal Committee issued a conditional recommendation in favor of systematic early rehabilitation in the ICU.