

# Unlocking [REDACTED] through [REDACTED] in Critically Ill Patients

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## Abstract

diagnostics in intensive care units (ICU) is a challenge, which is time-consuming or prone to false positive results. This limitation can delay clinical treatment and contribute to poor patient outcomes. This study evaluated a combined machine learning approach to predict the outcome of ICU patients, based on clinical data. Three patient groups were examined: those with sepsis, those with organ failure, and those with multiple organ dysfunction syndrome (MODS). Models developed, accurately distinguished between the groups, discriminating between patients with sepsis and those with organ failure, and between patients with organ failure and those with MODS. Discrimination was also observed in a test set of 100 samples, showing high sensitivity and specificity. All the results point to a high potential for rapid, precise diagnostics of critically ill patients, reducing reliance on traditional tests and enabling more precise treatment, thereby improving patient outcomes.

## Keywords