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EPIDEMIOLOGY OF CRITICAL CONDITIONS AND INTENSIVE CARE OUTCOMES: A PUBLIC HEALTH PERSPECTIVE

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Critical conditions continue to place considerable demands on healthcare systems, often resulting in high mortality, serious complications, prolonged hospital stays, and increased healthcare expenditure. Despite advances in emergency medicine and intensive care, patient outcomes remain dependent on several factors, including the severity of illness, pre-existing health conditions, the timeliness of medical intervention, and the availability of healthcare resources. Examining these factors from an epidemiological and public health perspective is essential for understanding variations in outcomes and identifying opportunities to improve the quality of care.

A narrative literature review was conducted to examine scientific publications addressing critical care epidemiology, intensive care unit (ICU) outcomes, quality assessment, and population-level health interventions. The review drew on literature concerning ICU registries, outcome measurement, and the management of critically ill patients, alongside relevant resources published by the World Health Organization. Particular emphasis was placed on mortality, survival, length of hospital stay, complications, risk adjustment, and the analysis of routinely collected clinical data.

The reviewed literature indicates that reliable assessment of intensive care services depends on consistent data collection and the use of clearly defined outcome indicators. Although mortality and survival rates are important measures of performance, they should be interpreted in the context of patients' initial clinical condition, disease severity, and underlying comorbidities. Statistical methods, particularly multivariable and survival analyses, help identify factors associated with unfavorable outcomes and provide a stronger basis for evidence-informed healthcare decisions. Clinical registries also play an important role in monitoring trends, comparing institutional performance, and identifying areas requiring improvement. Beyond the clinical setting, early recognition of critical illness, timely emergency treatment, effective

infection prevention, and equitable access to healthcare remain essential components of efforts to improve patient outcomes.

Epidemiological analysis and biostatistical methods provide valuable tools for understanding the factors that influence intensive care outcomes and for informing healthcare planning. Strengthening clinical data collection, applying appropriate risk-adjustment methods, and developing reliable ICU registries should be considered important priorities. A broader public health perspective can also help identify preventable causes of critical illness, address inequalities in access to intensive care, and guide the allocation of limited healthcare resources more effectively.

Keywords: Critical care, Epidemiology, Biostatistics, Mortality, Public health