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**Current Evidence on the Clinical and Epidemiological Characteristics of ICU-Acquired Weakness in Latin America: A Scoping Review Protocol**

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**ADMINISTRATIVE INFORMATION**

**Support** - Universidad de La Frontera.

**Review Stage at time of this submission** - Data analysis.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202530135

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 31 March 2025 and was last updated on 31 March 2025.

**INTRODUCTION**

**Review question / Objective** What are the clinical and epidemiological characteristics of ICU-acquired weakness (ICUAW) in intensive care unit patients in Latin America, according to the available evidence? To address the main review question, sub-questions have been developed in alignment with the PCC framework and the objectives of the study. These address key aspects of ICUAW in Latin America, including incidence, patient characteristics, risk factors, hospitalization details, and evaluation methods. The sub-questions are: What is the reported incidence and/or frequency of ICUAW in intensive care unit patients in Latin America, according to the available evidence? What are the demographic and clinical characteristics of patients with ICUAW in Latin America, including age, sex, reasons for ICU admission, and comorbidities, as reported in the selected studies? What are the reported hospitalization details of patients with ICUAW in Latin America, including

ICU length of stay, days on mechanical ventilation, complications, pharmacological treatments, and interventions received, according to the reviewed literature? What risk factors associated with ICUAW have been identified in studies conducted in Latin America? What methods have been used to diagnose ICUAW in Latin America, and what are the reported evaluation outcomes in the included studies? What strategies or interventions for the management or prevention of ICUAW have been reported in studies conducted in Latin America? The objective of this scoping review is to synthesize available evidence on clinical and epidemiological characteristics (Concept) of adult patients with ICU-acquired weakness hospitalized in intensive care units (Population) within Latin America (Context), identifying reported incidence, risk factors, diagnostic methods, and management strategies.

**Background** ICU-acquired weakness (ICUAW) is one of the most common complications in critically

ill patients. This condition is characterized by a generalized loss of muscle strength, affecting both limb and respiratory muscles. ICUAW has a significant impact on morbidity, mortality, and overall healthcare costs. Several risk factors have been identified, including prolonged immobility, systemic inflammation, and commonly used ICU medications such as sedatives and corticosteroids. Studies indicated that the prevalence of ICUAW was highly variable, ranging from 25% to 50% in patients requiring prolonged mechanical ventilation, with even higher rates reported in specific patient populations. Patients who developed ICUAW experienced prolonged hospital stays, increased functional dependency, and a greater risk of long-term complications.

Despite extensive international research, particularly in regions such as Europe, North America, and Asia, specific data on ICUAW in Latin America remain scarce. A preliminary literature search on ICUAW reports in Latin America revealed a limited number of studies. Among the most recent were follow-up studies on ICUAW and COVID-19, as well as studies analyzing ICUAW incidence, risk factors, and associations with respiratory muscle strength, or other specific cohort follow-up studies in ICUs. However, no comprehensive synthesis or regional data aggregation had been identified.

This lack of information may be attributed to challenges in reporting practices across different countries, disparities in hospital infrastructure, and variations in resource availability. Additionally, sociodemographic and epidemiological factors unique to Latin America may influence the clinical presentation and progression of ICUAW, potentially creating a distinct scenario from that described in the global literature.

These gaps highlight the need to explore region-specific data that may impact the epidemiology and management of ICUAW. In this context, the absence of recent reviews synthesizing the available literature in Latin America represents a significant knowledge gap.

Therefore, this scoping review aims to describe the clinical and epidemiological characteristics of ICUAW patients in Latin America, identifying risk factors and relevant interventions for its prevention and management. This review seeks to establish a foundation for future research and contribute to the development of policies and clinical guidelines tailored to the realities of Latin American healthcare systems.

**Rationale** Limited data on the prevalence of ICUAW in Latin America underscore the urgent need for research on its prevalence, risk factors, and outcomes in this region. Although extensive

international literature exists, the unique characteristics and challenges of Latin American healthcare systems remain largely undescribed. Disparities in healthcare infrastructure, resource availability, and sociodemographic factors may influence the presentation and progression of this syndrome in this population, highlighting the necessity of region-specific studies. This scoping review aims to provide a comprehensive synthesis of available evidence on ICUAW in Latin America, addressing aspects such as reported incidence, demographic and clinical characteristics of affected patients, hospitalization details, risk factors, diagnostic and evaluation methods, as well as the preventive and therapeutic strategies currently implemented. By mapping the available literature, this review will contribute to a better understanding of ICUAW in the region and serve as a foundation for future research and clinical guidelines tailored to Latin American healthcare contexts.

## METHODS

**Strategy of data synthesis** A systematic approach was implemented following the JBI guidelines to ensure a comprehensive and rigorous data synthesis and in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR).

The search strategy aimed to locate both published and unpublished primary studies, reviews, and gray literature relevant to ICUAW in Latin America. An initial limited search was conducted in PubMed (MEDLINE), LILACS (BVS), and EMBASE (Elsevier) to identify relevant articles on the topic. The text words contained in the titles and abstracts of relevant articles, as well as the index terms used to describe the articles, were analyzed to develop a comprehensive search strategy for PubMed (MEDLINE), LILACS (BVS), EMBASE (Elsevier), CINAHL (EBSCOhost), Scopus, and Web of Science (see Appendix I for full search strategies).

The search strategy, including all identified keywords and index terms, was adapted for each information source to ensure comprehensive coverage. Additionally, the reference lists of all articles selected for full-text review were screened to identify any additional relevant studies.

No restrictions will be placed on publication date. Studies will be considered in any language, except those published in non-conventional languages for research in Latin America, such as Chinese, Japanese, Arabic, or Russian, as they are unlikely to contain relevant studies on the population under review. Additionally, these languages will be

excluded due to the lack of reliable professional translations, which could compromise the accuracy of data interpretation. This decision will be made to ensure precision in data extraction and analysis.

The databases searched included PubMed (MEDLINE), LILACS (BVS), EMBASE (Elsevier), CINAHL (EBSCOhost), Scopus, and Web of Science. Sources of unpublished studies and gray literature included Google Scholar, MedicLatina, Referencia Latina, SciELO, and Latin American critical care journals.

This strategy ensured the identification of both published and unpublished sources related to ICUAW in Latin America, maximizing the scope and comprehensiveness of the review.

This scoping review included primary research studies, such as observational studies (cohort, case-control, and cross-sectional studies), randomized controlled trials (RCTs), case series, and case reports. Additionally, secondary research, including systematic reviews, meta-analyses, and other evidence syntheses related to ICUAW, was considered if it provided relevant epidemiological, clinical, or management data. Grey literature, such as conference abstracts and theses, was also included, provided it contained accessible and complete data relevant to this review's objectives.

The review focused on adult patients ( $\geq 18$  years) hospitalized in intensive care units (Population) in Latin America (Context), addressing ICUAW (Concept) in any diagnostic form. Eligible studies reported on clinical and sociodemographic characteristics, hospitalization details, risk factors, and strategies for prevention or management. Studies involving patients with pre-existing neuromuscular or neurological conditions, lacking explicit ICUAW data, or without accessible full texts were excluded.

### Eligibility criteria

#### Participants

This review will include studies involving adults aged 18 years or older who have been hospitalized in intensive care units (ICUs) within Latin American countries. The included population comprised general ICU patients, excluding individuals with pre-existing neuromuscular or neurological conditions that could independently affect the musculoskeletal system (e.g., Guillain-Barré syndrome, myasthenia gravis, stroke, spinal cord injury).

#### Concept

This review will consider studies addressing ICUAW by examining its epidemiological data, clinical evaluation, and associated outcomes. Eligible studies that have reported information on ICUAW frequency and/or incidence,

sociodemographic characteristics such as age and sex, primary reasons for ICU admission, and relevant comorbidities will be included. Additionally, studies that have included data on risk and protective factors for ICUAW, details of ICU hospitalization such as length of stay, days on mechanical ventilation, and pharmacological treatments will be considered. Studies that have assessed ICUAW using validated clinical or functional evaluation methods, such as the Medical Research Council (MRC) scale or handgrip dynamometry, will also be considered. Furthermore, studies examining therapeutic and preventive strategies, including early mobilization protocols or pharmacological interventions, will be considered to understand their impact on ICUAW prevention and management.

#### Context

This review will include studies conducted in ICUs within Latin American countries, encompassing diverse cultural, geographical, and healthcare settings. The focus will be on populations from this region, considering their unique sociodemographic and healthcare characteristics that may influence ICUAW presentation and outcomes.

No restrictions will be placed on the type of ICU (e.g., general, surgical, mixed) as long as the study population is from a Latin American country. Studies conducted or published outside Latin America that specifically analyze ICU patients from the region will also be included, provided they contain relevant epidemiological or clinical data.

#### Types of sources

This scoping review will include a wide range of sources to comprehensively map the evidence on ICUAW in Latin America. Primary research studies such as observational studies (cohort, case-control, and cross-sectional studies), randomized controlled trials, case series, and case reports will be considered. Secondary research, such as systematic reviews, meta-analyses, and other evidence syntheses related to ICUAW, will also be included if they provide relevant epidemiological, clinical, or management data. Additionally, grey literature, including conference abstracts and theses, will be considered, provided they contain accessible and complete data pertinent to the objectives of this review.

### Source of evidence screening and selection

Following the search, all identified records were collated and uploaded into Rayyan (Rayyan Systems Inc., Cambridge, MA, USA) for independent screening and analysis. Duplicates were removed within Rayyan before further processing. Following a pilot test, titles and abstracts were screened by two independent reviewers for assessment against the inclusion

criteria of the review. Potentially relevant articles were retrieved in full and managed using EndNote 21 (Clarivate Analytics, PA, USA) for reference organization.

The full-text screening process was conducted exclusively in Rayyan, where two independent reviewers assessed the eligibility of each study. Any disagreements between the reviewers at each stage of the selection process were resolved through discussion or by consulting a third reviewer. Final inclusions were agreed upon by consensus between both reviewers. The search results will be fully reported in the final scoping review and presented in a PRISMA flow diagram.

**Data management** For data extraction, a custom database was created in Microsoft Excel, where information was systematically extracted by two independent researchers. A cross-checking process was conducted to ensure accuracy and consistency in data collection. The extraction process adhered to the Population, Concept, and Context (PCC) framework guiding this scoping review. The Population included adults aged 18 years or older hospitalized in intensive care units within Latin American countries. The Concept focused on ICUAW, including its epidemiology, diagnostic methods, associated risk and protective factors, and interventions for prevention or management. The Context comprised studies conducted in Latin American ICUs. Extracted data included study characteristics such as authorship, publication year, article title, country of origin, study design, and study objectives. Additionally, relevant clinical data on ICUAW were collected, encompassing patient demographics, frequency or incidence rates, risk and protective factors, diagnostic methods, hospitalization details (length of ICU stay, days on mechanical ventilation, pharmacological treatments), disease progression indicators, and reported interventions for ICUAW prevention or management.

A draft extraction tool is provided (see Appendix II). Before the full data extraction process, a pilot test was conducted to evaluate the accuracy and feasibility of the data collection tool. Modifications were implemented accordingly, and all changes were documented in the final scoping review. The draft data extraction tool will be modified and revised as necessary during the process of extracting data from each included paper. Modifications will be detailed in the full scoping review.

Any disagreements that arise between the reviewers will be resolved through discussion or with a third reviewer. In cases of disagreement during data extraction, discussion between the two independent reviewers was used to reach a

consensus, and a third reviewer was consulted if necessary.

Authors of papers will be contacted by email to request missing or additional data, where required.

**Reporting results / Analysis of the evidence** A descriptive and narrative synthesis will be conducted to summarize key findings, ensuring that the evidence presented directly responds to the review objectives and research questions. Data will be synthesized qualitatively, considering potential heterogeneity across studies in terms of methodologies, study populations, and reported outcomes. Any discrepancies in diagnostic criteria, intervention strategies, or reported incidence rates will be documented to provide insight into regional differences in ICUAW research.

According to the recommendations and following an analysis by the authors, this scoping review will not include a critical appraisal of the risk of bias or methodological quality of the studies. The objective of this protocol is to explore the volume, nature, and characteristics of the existing literature on ICUAW in Latin America. Additionally, the diversity in methodological designs and data sources of the included studies will make the application of critical appraisal tools challenging to implement uniformly and methodologically rigorously.

**Presentation of the results** Findings will be presented in multiple tables to enhance clarity and systematic organization of results. The first table will summarize study characteristics, including country, study design, sample size, study objectives, and relevant results contributing to this review. Additional tables will present specific findings aligned with the review objectives and research questions, including the reported incidence and frequency of ICUAW, demographic and clinical characteristics of affected patients, hospitalization details (length of ICU stay, days on mechanical ventilation, complications, pharmacological treatments, and interventions received), identified risk factors, diagnostic methods and evaluation outcomes, as well as therapeutic strategies or interventions for the management and prevention of ICUAW in Latin America.

Data visualization techniques, including bar charts, heat maps, and geographic distribution figures, will be employed to illustrate the prevalence of ICUAW, diagnostic approaches, and therapeutic strategies across different Latin American countries. This approach will aim to highlight patterns, variations, and gaps in the existing research, offering a regional perspective on ICUAW.



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A narrative summary will accompany the tabulated and visualized data, ensuring that the synthesis of findings is structured according to the PCC framework and aligned with the review objectives. This structured approach will enable a systematic comparison of demographic profiles, diagnostic practices, and intervention strategies across studies. Additionally, findings will be mapped against international ICUAW information and existing research from other regions to contextualize the results within the broader scientific literature. The synthesis will also identify knowledge gaps and areas requiring further investigation, guiding future research directions.

**Language restriction** None.

**Country(ies) involved** Chile.

**Keywords** Critical illness; Epidemiological trends; Intensive care outcomes; Neuromuscular complications; Rehabilitation strategies.

#### **Contributions of each author**

Author 1 - Rocío Fuentes-Aspe - Contributed to the conceptualization of the research, supervised the research process and methodology, conducted the literature search and data collection, validated the extracted data and resolved reviewer discrepancies, contributed to the interpretation of results, to writing and revising the protocol, review and approval of the final document.

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Author 3 - Felipe González-Seguel - Contributed to writing and revising the protocol, critically reviewed and edited the manuscript for accuracy and clarity, contributed to the final review and approval of the document.

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Author 4 - Pamela Seron - Provided critical feedback on the study design and execution, supervised the research process and methodology, provided expert revisions and final approval for submission.

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