**International perspectives on pediatric palliative care: Mexico**

Affiliations expand

**Abstract**

The safe keeping of children and families that require Pediatric Palliative Care (PPC), presents a challenge to the healthcare professionals and systems, particularly in countries like Mexico. This is due to social inequities, the cultural diversity, the geo-regional position that determine specific social dynamics and nowadays the huge immigration issues that we are facing. The combination of all these factors, requires a vast knowledge from PPC providers about the necessary tools to properly provide the support needed in the most effective and efficient way, based on compassion. Knowing how to accurately understand the needs of children and their families requiring PPC and how to best assist them during the decision-making process is extremely important. At the same time, all PPC team members require expertise in addressing pediatric pathophysiology and bioethical issues that apply to diverse and heterogeneous age groups.

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# Mexican consensus on cow's milk protein allergy

## Abstract

**Background:**The aim of this study is to present the current views of a diverse group of experts on the diagnosis and treatment of Cow's Milk Protein Allergy (CMPA) in children under 2 years of age in Mexico.

**Material and methods:**The study, led by a scientific committee of five experts in CMPA, was divided into six phases, including a modified Delphi process. A total of 20 panelists, all of whom were pediatric specialists, participated in administering a comprehensive 38-item questionnaire. The questionnaire was divided into two blocks: Diagnosis and Treatment (20 items each).

**Results:**Consensus was reached on all the proposed items, with an agreement rate of over 70% for each of them. As a result, a diagnostic and treatment algorithm was developed that emphasized the reduction of unnecessary diagnostic studies and encouraged breastfeeding whenever possible. In cases where breast milk is not available, appropriate use of hypoallergenic formulas was recommended. In addition, recommendations on treatment duration and gradual reintroduction of cow's milk protein were provided.

**Conclusions:**The recommendations endorsed by 20 Mexican pediatricians through this study are applicable to everyday clinical practice, thereby enhancing the diagnosis and treatment of children under 2 years of age with CMPA. This, in turn, will foster improved health outcomes and optimize the utilization of healthcare resources.

**Keywords:**Consensus; Cow’s Milk Protein Allergy; Delphi; Hypoallergenic Formulas; Tolerance.

# COVID-19 pandemic and its impact on medical interns' mental health of public and private hospitals in Guadalajara

**Free PMC article**

## Abstract

**Introduction:**Burnout syndrome is a global burden characterized by exhaustion, work detachment, and a sense of ineffectiveness. It affects millions of individuals worldwide, with a particularly high prevalence among medical students. Factors such as demanding education, exposure to suffering, and the COVID-19 pandemic have contributed to elevated stress levels. Addressing this issue is crucial due to its impact on well-being and health-care quality.

**Materials and methods:**This cross-sectional survey study assessed fear of COVID-19 and burnout levels among medical student interns in hospitals in Guadalajara, Jalisco. The study used validated scales and collected data from September 2021 to September 2022. A snowball sampling method was employed and a minimum sample size of 198 participants was calculated.

**Results:**This study included 311 medical students (62.1% female and 37.9% male with a mean age of 23.51 ± 2.21 years). The majority were in their second semester of internship (60.5%) and from public hospitals (89.1%). Most students believed that the COVID-19 pandemic affected the quality of their internship (82.6%). Female students had higher personal burnout scores, while male students had higher work-related burnout scores. The mean score for fear of COVID-19 was 13.71 ± 6.28, with higher scores among women (*p* = 0.004) and those from public hospitals (*p* = 0.009). A positive weak correlation was found between COVID-19 scores and burnout subscales.

**Conclusion:**Our study emphasizes the significant impact of various factors on burnout levels among medical students and health-care professionals during the COVID-19 pandemic. Prolonged exposure to COVID-19 patients, reduced staffing, and increased workload contributed to burnout, affecting well-being and quality of care. Targeted interventions and resilience-building strategies are needed to mitigate burnout and promote well-being in health-care settings.

**Keywords:**COVID-19; burnout syndrome; medical student; mental health; pandemic; workload.

# Acute Myocardial Injury Assessed by High-Sensitivity Cardiac Troponin I Levels in Adult Patients with Early Sepsis at a Tertiary Referral Center in Mexico: An Exploratory Study

**Free PMC article**

## Abstract

The objective of the study was to describe the frequency of acute myocardial injury (AMI) assessed by high-sensitivity cardiac troponin I (hs-cTnI) levels and to determine the possible initial risk factors (related to the characteristics of the patient, the disease, and the initial management) in a population of adult patients with early sepsis (within the first 72 h of diagnosis) in a single tertiary hospital center in western Mexico. For the inferential statistics, the proportions of the categorical dichotomous variables were compared using the chi-square test. In all analyses, *p* values less than 0.05 with a 95% confidence interval were considered significant. We included a total of 64 patients diagnosed with early sepsis, of whom 46 presented elevated hs-cTnI and were classified as having AMI. In our study, the frequency of AMI in patients with early sepsis was 71.87%, and no significant differences were found in all of the characteristics of patients with early sepsis with and without AMI, nor was any significant association found with any of the variables analyzed. In the population of western Mexico, the frequency of AMI in patients with early sepsis, assessed by hs-cTnI levels, is high and similar to that reported in other populations worldwide.

**Keywords:**acute myocardial injury; high-sensitivity cardiac troponin I; se

# Validation of the Brief International Cognitive Assessment for Multiple Sclerosis (BICAMS) in individuals with multiple sclerosis from Mexico

## Abstract

**Background:**Cognitive impairment is observed in 43-70 % of Multiple sclerosis (MS) patients. One of the most widely used batteries for cognitive assessment in this population is the Brief International Cognitive Assessment for MS (BICAMS). The objective of this study was to validate and assess the reliability of the BICAMS in a Mexican population with MS and to obtain and provide regression-based norms.

**Methods:**One hundred healthy controls (HCs) and 100 patients with multiple sclerosis participated in the present study, and groups were matched for age, years of education and sex. Subjects completed all three tests of the BICAMS. Test-retest measures were obtained from 30 patients to test reliability.

**Results:**The sample´s average age was 43.39 ± 6.03 years old, and the average years of education was 12.55 ± 2.52 years. Approximately 63 % of the participants were female. The groups did not differ in age, years of education, or sex. The MS group performed significantly worse than the HCs group on all three neuropsychological tests. A significant difference was observed for the SDMT (t = 10.166; p=<0.001), CVLT-II (t = 10.949; p=<0.001), and BVMT-R (t = 2.636; p = 0.009). For all comparisons, the effect size (d) for each test was calculated as follows: SDMT= 0.58 and CVLT-II= 0.61. The test-retest coefficients for each test were as follows: SDMT: r = 0.95; CVLT-II: r = 0.84; and BVMT-R = 0.81.

**Conclusion:**The BICAMS can provide information on cognitive impairment in MS patients, and this information can be used by neuropsychologists for cognitive rehabilitation in different domains.

**Keywords:**BICAMS; Cognitive function; Mexico; Multiple sclerosis; Validation.

Blood transfusion reactions and risk of acute kidney injury and major adverse kidney events

## Abstract

**Background:**Blood transfusion reactions may have a negative impact on organ function. It is unknown whether this association holds true for acute kidney injury (AKI). Therefore, we conducted a cohort study to assess the association between transfusion reactions and the incidence of AKI and major adverse kidney events.

**Methods:**In this retrospective cohort study, we included patients who received transfusion of blood products during hospitalization at the Hospital Civil of Guadalajara. We analyzed them according to the development of transfusion reactions, and the aim was to assess the association between transfusion reactions and AKI during long-term follow-up.

**Results:**From 2017 to 2021, 81,635 patients received a blood product transfusion, and 516 were included in our study. The most common transfusion was red blood cell packaging (50.4%), fresh frozen plasma (28.7%) and platelets (20.9%); of the 516 patients, 129 (25%) had transfusion reactions. Patients who had transfusion reactions were older and had more comorbidities. The most common type of transfusion reaction was allergic reaction (70.5%), followed by febrile nonhemolytic reaction (11.6%) and anaphylactoid reaction (8.5%). Most cases were considered mild. Acute kidney injury was more prevalent among those who had transfusion reactions (14.7%) than among those who did not (7.8%), p = < 0.01; those with AKI had a higher frequency of diabetes, vasopressors, and insulin use. Transfusion reactions were independently associated with the development of AKI (RR 2.1, p = < 0.02). Major adverse kidney events were more common in those with transfusion reactions. The mortality rate was similar between subgroups.

**Conclusion:**In our retrospective cohort of patients who received blood product transfusions, 25% experienced transfusion reactions, and this event was associated with a twofold increase in the probability of developing AKI and some of the major adverse kidney events during long follow-up.

**Keywords:**Acute kidney injury; Blood transfusions; Major adverse kidney events; Transfusion reactions.

**Unexpected myocardium: Benign finding or pathological debut?**

No abstract available

Incidence, and factors associated with moderate/severe pediatric traumatic brain injury in children aged 5-15 years in western, Mexico

## Abstract

**Objective:**The study objectives were to estimate the standardized incidence and evaluate factors associated with moderate/severe pediatric traumatic brain injury (p-TBI) in children aged 5-15 years in Western, Mexico.

**Methods:**The study was cross-sectional in design. We estimated the standardized incidence of moderate/severe p-TBI using the direct methods of the World Health Organization (WHO) standard populations. We utilized the Glasgow Coma Scale (GCS) to identify moderate/severe p-TBI patients (GCS ≤ 13). Logistic regression analysis was applied to evaluate variables associated with moderate/severe p-TBI.

**Results:**The standardized incidence of patients diagnosed with moderate/severe p-TBI was 31.0/100,000 person-years (95 % CI 28.7-33.4). According to age, the moderate/severe TBI group was included. A total of 254 (38.5 %) patients were aged 5-9 years, 343 (52.0 %) were aged 10-14 years, and 62 (9.5 %) were aged 15 years. Factors associated with moderate/severe TBI in the crude analysis were male sex (OR 5.50, 95 % CI 4.16-7.39, p < 0.001), primary school (OR 2.15, 95 % CI 1.62-2.84, p < 0.001), and falls (OR 1.34, 95 % CI 1.02-1.77, p = 0.035). Factors associated with moderate/severe p-TBI in the adjusted analysis were male sex (OR 6.12, 95 % CI 4.53-8.29, p < 0.001), primary school (OR 3.25, 95 % CI 2.31-4.55, p < 0.001), and falls (OR 1.78, 95 % CI 1.28-2.47, p < 0.001).

**Conclusion:**The incidence of moderate/severe p-TBI in children aged 5-15 years in western Mexico in this study was higher than that in other studies. One of the biggest factors associated with moderate/severe p-TBI was male sex, specifically those with lower education levels and those who were prone to falls.

**Keywords:**Factors associated; Falls; Incidence; Mexico; Pediatric; Traumatic brain injury; p-TBI.

**International Nosocomial Infection Control Consortium (INICC) report of health care associated infections, data summary of 45 countries for 2015 to 2020, adult and pediatric units, device-associated module**

## Abstract

**Background:**Reporting on the International Nosocomial Infection Control Consortium study results from 2015 to 2020, conducted in 630 intensive care units across 123 cities in 45 countries spanning Africa, Asia, Eastern Europe, Latin America, and the Middle East.

**Methods:**Prospective intensive care unit patient data collected via International Nosocomial Infection Control Consortium Surveillance Online System. Centers for Disease Control and Prevention/National Health Care Safety Network definitions applied for device-associated health care-associated infections (DA-HAI).

**Results:**We gathered data from 204,770 patients, 1,480,620 patient days, 936,976 central line (CL)-days, 637,850 mechanical ventilators (MV)-days, and 1,005,589 urinary catheter (UC)-days. Our results showed 4,270 CL-associated bloodstream infections, 7,635 ventilator-associated pneumonia, and 3,005 UC-associated urinary tract infections. The combined rates of DA-HAIs were 7.28%, and 10.07 DA-HAIs per 1,000 patient days. CL-associated bloodstream infections occurred at 4.55 per 1,000 CL-days, ventilator-associated pneumonias at 11.96 per 1,000 MV-days, and UC-associated urinary tract infections at 2.91 per 1,000 UC days. In terms of resistance, Pseudomonas aeruginosa showed 50.73% resistance to imipenem, 44.99% to ceftazidime, 37.95% to ciprofloxacin, and 34.05% to amikacin. Meanwhile, Klebsiella spp had resistance rates of 48.29% to imipenem, 72.03% to ceftazidime, 61.78% to ciprofloxacin, and 40.32% to amikacin. Coagulase-negative Staphylococci and Staphylococcus aureus displayed oxacillin resistance in 81.33% and 53.83% of cases, respectively.

**Conclusions:**The high rates of DA-HAI and bacterial resistance emphasize the ongoing need for continued efforts to control them.

**Keywords:**Antibiotic resistance; Bloodstream infection; Catheter-associated urinary tract infection; Central line-associated bloodstream infections; Developing countries; Device-associated infection; Hospital infection; Limited resources countries; Low income countries; Network; Urinary tract infection; Ventilator-associated pneumonia.

# Securing access to a comprehensive diagnostic panel for children with suspected acute lymphoblastic leukemia: Results from the Mexico in Alliance with St. Jude "Bridge Project"

**Free PMC article**

## Abstract

**Background:**The "Bridge Project" is a Mexico in Alliance with St. Jude (MAS) initiative developed in 2019 to improve access, accuracy, and timeliness of specialized diagnostic studies for patients with suspected acute lymphoblastic leukemia (ALL). The project strategy relies on service centralization to improve service delivery, biological characterization, risk-group classification, and support proper treatment allocation.

**Methods:**This is an ongoing prospective multisite intersectoral quality improvement (QI) project available to all patients 0-18 years of age presenting with suspected ALL to the 14 actively participating institutions in 12 Mexican states. Institutions send specimens to one centralized laboratory. From a clinical standpoint, the project secures access to a consensus-derived comprehensive diagnostic panel. From a service delivery standpoint, we assess equity, timeliness, effectiveness, and patient-centeredness. From an implementation science standpoint, we document feasibility, utility, and appropriateness of the diagnostic panel and centralized approach. This analysis spans from July 2019 to June 2023.

**Results:**612 patients have accessed the project. The median age was 6 years (IQR 3-11), and 53% were males. 94% of the specimens arrived within 48 hours, which documents the feasibility of the centralized model, and 100% of the patients received precise and timely diagnostic results, which documents the effectiveness of the approach. Of 505 (82.5%) patients with confirmed ALL, 463/505 (91.6%) had B-cell ALL, and 42/505 (8.3%) had T-cell ALL. High-hyperdiploidy was detected by DNA index in 36.6% and hypodiploidy in 1.6%. 76.6% of the patients had conclusive karyotype results. FISH studies showed t(12;21) in 15%, iAMP21 in 8.5%, t(1;19) in 7.5%, t(4;11) in 4.2%, t(9;22) in 3.2%, del(9)(p21) in 1.8%, and TRA/D (14)(q11.2) rearrangement in 2.4%. Among B-cell ALL patients, 344/403 (85.1%) had Day 15 MRD<1% and 261/305 (85.6%) Day 84 MRD<0.01. For T-cell ALL patients 20/28 (71.4%) had Day 29 MRD<0.01% and 19/22 (86.4%) Day 84 MRD<0.01%.

**Conclusions:**By securing access to a standardized consensus-derived diagnostic panel, the Bridge Project has allowed better characterization of childhood ALL in Mexico while producing unprecedented service improvements and documenting key implementation outcomes. We are using these results to inform iterative changes to the diagnostic panel and an associated treatment guideline (MAS-ALL18).

**Keywords:**Mexico; acute lymphoblastic leukemia; clinical characteristics; consensus-derived; diagnostic panel; epidemiology; multisite; pediatric.

**Incidence and risk factors for catheter-associated urinary tract infection in 623 intensive care units throughout 37 Asian, African, Eastern European, Latin American, and Middle Eastern nations: A multinational prospective research of INICC**

## Abstract

**Objective:**To identify urinary catheter (UC)-associated urinary tract infection (CAUTI) incidence and risk factors.

**Design:**A prospective cohort study.

**Setting:**The study was conducted across 623 ICUs of 224 hospitals in 114 cities in 37 African, Asian, Eastern European, Latin American, and Middle Eastern countries.

**Participants:**The study included 169,036 patients, hospitalized for 1,166,593 patient days.

**Methods:**Data collection took place from January 1, 2014, to February 12, 2022. We identified CAUTI rates per 1,000 UC days and UC device utilization (DU) ratios stratified by country, by ICU type, by facility ownership type, by World Bank country classification by income level, and by UC type. To estimate CAUTI risk factors, we analyzed 11 variables using multiple logistic regression.

**Results:**Participant patients acquired 2,010 CAUTIs. The pooled CAUTI rate was 2.83 per 1,000 UC days. The highest CAUTI rate was associated with the use of suprapubic catheters (3.93 CAUTIs per 1,000 UC days); with patients hospitalized in Eastern Europe (14.03) and in Asia (6.28); with patients hospitalized in trauma (7.97), neurologic (6.28), and neurosurgical ICUs (4.95); with patients hospitalized in lower-middle-income countries (3.05); and with patients in public hospitals (5.89).The following variables were independently associated with CAUTI: Age (adjusted odds ratio [aOR], 1.01; *P* < .0001), female sex (aOR, 1.39; *P* < .0001), length of stay (LOS) before CAUTI-acquisition (aOR, 1.05; *P* < .0001), UC DU ratio (aOR, 1.09; *P* < .0001), public facilities (aOR, 2.24; *P* < .0001), and neurologic ICUs (aOR, 11.49; *P* < .0001).

**Conclusions:**CAUTI rates are higher in patients with suprapubic catheters, in middle-income countries, in public hospitals, in trauma and neurologic ICUs, and in Eastern European and Asian facilities.Based on findings regarding risk factors for CAUTI, focus on reducing LOS and UC utilization is warranted, as well as implementing evidence-based CAUTI-prevention recommendations.

**Acute promyelocytic leukemia with *PML/RARA* (bcr1, bcr2 and bcr3) transcripts in a pediatric patient**

**Free PMC article**

## Abstract

Patients with acute promyelocytic leukemia (APL) exhibit the t(15;17)(q24.1;q21.2) translocation that produces the promyelocytic leukemia (*PML*)/retinoic acid receptor α (*RARA*) fusion gene. Different *PML* breakpoints yield three alternative molecular transcripts, bcr1, bcr2 and bcr3. The present study reports the simultaneous presence of three *PML/RARA* transcripts in a pediatric female patient diagnosed with APL, according to the clinical characteristics, immunophenotype and karyotype of the patient. The simultaneous presence of the *PML/RARA* transcripts were detected using reverse transcription-quantitative PCR (RT-qPCR). This was confirmed with HemaVision-28N Multiplex RT-qPCR, HemaVision-28Q qualitative RT-qPCR and the AmpliSeq RNA Myeloid Panel. To the best of our knowledge, the pediatric patient described in the present study is the first case found to exhibit all three PML/RARA transcripts (bcr1, bcr2 and bcr3). Additionally, a microarray analysis was performed to determine the expression profile, potential predictive biomarkers and the implications of this uncommon finding. According to the information obtained from molecular monitoring, the results reported in the present study were associated with a good patient prognosis. In addition, upregulated genes that are rare in acute myeloid leukemia were identified, and these genes may be promising diagnostic biomarkers for further study. For example, CCL-1 is present in leukemic stem cells, causing treatment failure and relapse, and α- and β-defensins have been reported exclusively in chronic myeloid leukemia. However, the results of the present study confirmed that they may also be present in APL. Thus, these findings suggested a possible signaling pathway that involves the PML/RARA oncoprotein in APL.

**Keywords:**acute promyelocytic leukemia; bcr1; bcr2; bcr3; pediatric.