

Emergency department HIV screening since implementation of the “Leave Your Mark” (Deja tu huella) program

Experiencia de cribado de VIH en urgencias desde la llegada de “Deja tu huella”

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To the Editor,

The epidemic caused by the human immunodeficiency virus (HIV) continues to be a public health problem. It is estimated that 39 million people were living with HIV in 2022, and of these, 630,000 died from AIDS-related illnesses.

In Europe, over the last 5 years, there have been 2,454,878 new diagnoses of HIV, 66,942 of which occurred in Spain.² In our country, 2,956 new diagnoses were reported in 2022, representing a rate of 6.23 per 100,000 inhabitants—similar to those of other Western European countries, although higher than the European Union average.³ In 2022, 48.6% of new diagnoses were made late, meaning CD4 lymphocyte counts were < 350 cells/mL.³ It is estimated that 7.5% of people living with HIV in Spain are unaware of their diagnosis.⁴

This implies a worse prognosis and lower quality of life for the patients (those with late diagnosis have a 5-fold increased risk of death), higher transmission rates (individuals unaware of their in-

fection are 3.5 times more likely to transmit it), and increased health care costs due to greater morbidity and hospitalization associated with late diagnosis.⁵

Emergency departments (EDs) are a primary access point to the health care system for certain populations—young people, sexually active individuals, immigrants, and people who cannot or do not wish to be screened in primary care settings. Between 28% and 54.7% of missed opportunities for HIV diagnosis occur in EDs.^{6,7} Therefore, in 2019, 82 EDs across Spain joined the SEMES (Spanish Society of Emergency Medicine) initiative “Deja tu Huella” (Leave Your Mark) for early HIV detection.

In this study, we present the preliminary results from the ED of *Hospital Universitario de Toledo* (Toledo, Spain) on early HIV detection in patients with conditions associated with undiagnosed HIV infection.

Following the “Deja tu Huella” protocol, non-emergency HIV serology testing was performed in the following cases, after obtaining verbal consent from patients:

- Suspected sexually transmitted infections (STIs)
- Suspected mononucleosis-like syndrome
- Practice of chemsex (drug use for sexual purposes)
- Request for post-exposure prophylaxis (PEP)
- Patients aged 18-65 without known predisposing factors presenting with:

- Community-acquired pneumonia (CAP).

- Herpes zoster (HZ). Patients presenting with community-acquired pneumonia or herpes zoster (HZ).

These 6 clinical conditions were screened for HIV infection due to their high prevalence in HIV-positive patients and frequent presentation in the ED, as well as other less prevalent conditions with favorable cost-benefit ratios. We reviewed all HIV serologies requested in 2022 and 2023, including the reasons for testing.

In 2022, a total of 640 serologies were requested from the ED, with 0 positive results.

In 2023, a total of 662 serologies were requested, 4 of which turned out positive—yielding a positivity rate of 0.6%. One positive result was related to a PEP case, 1 to an STI, and 2 cases to other conditions. Among the patients diagnosed with HIV, only 2 were categorized as late diagnoses. All patients were followed up by the hospital's Infectious Diseases Unit and began treatment within 30 days (Table 1).

When comparing these results with SEMES data from the “Deja tu Huella” initiative in Spain and Castile-La Mancha in 2022 and 2023 (positivity rates of 0.65% and 0.95%, respectively), we find similar figures to those from our center. These are also comparable to those reported by Fuentes Ferrer et al.,⁸ who found a positivity rate of 0.60% in the ED population. In 3 Spanish studies included in their meta-anal-

Table 1. Clinical and sociodemographic characteristics of the patients diagnosed during the study period

	Age	Sex at Birth	Country of Birth	Risk Behavior	CD4 Count	Viral Load	1 st Consultation	Days ED/Visits	Follow-up
1	31	Male	Spain	No	483 cells/mm ³	37,200 copies/mL	Yes	11	Yes
2	28	Male	Spain	Yes	289 cells/mm ³	131,000 copies/mL	Yes	26	Yes
3	22	Female	Spain	Yes	1,158 cells/mm ³	91,400 copies/mL	Yes	5	Patient left
4	29	Male	El Salvador	Yes	326 cells/mm ³	92,000 copies/mL	Yes	6	Yes

ysis, the prevalence rates were 0.59%, 0.15%, and 0.84%.

The increase in positivity rate vs the “Before and After” study results—locally, regionally, and nationally—is striking, despite a notable increase in the number of serologies requested from the ED. This may prompt reflection on whether the number of missed diagnostic opportunities is actually higher than previously reported, or whether the prevalence of undiagnosed HIV infection is greater than suspected.

Therefore, the early HIV detection strategy implemented in the ED of *Hospital Universitario de Toledo* is proving effective, as expected. It is essential that we continue to promote HIV serology testing to increase early diagnosis rates and thus improve patient outcomes.⁹

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Colitis caused by hydrogen peroxide enemas: a case report

Colitis por enema con peróxido de hidrógeno: a propósito de un caso

To the Editor,

Hydrogen peroxide is a widely used agent for wound disinfection. Its use on mucous membranes can cause irritative effects and may lead to complications such as ulcerations due to mucosal friability and gastrointestinal bleeding.

We present the case of a 48-year-old man who presented to the ED with intense abdominal pain in the hypogastrium and right iliac fossa, associated with rectal bleeding. His past medical history included a 6-year history of asthma and chronic abdominal pain in the right iliac fossa, which began after a skin infection. A recent stool parasite test turned out negative, and a colonoscopy the previous year had diagnosed dolichocolon, grade III-IV hemorrhoidal disease without complications, and an uncomplicated anal fissure.

The patient had initiated

a self-prescribed treatment to eradicate a bacterium he claimed was present in his intestines. This involved a week of fasting and daily ingestion of 35% hydrogen peroxide, combined with two enemas containing hydrogen peroxide.

Upon arrival at the ED, his vital signs were stable. Physical examination revealed mild skin pallor, unremarkable cardiopulmonary auscultation, abdominal tenderness in the right iliac fossa without signs of peritoneal irritation, and a digital rectal exam that revealed reducible grade III hemorrhoids and

traces of blood. Lab test results showed metabolic acidosis with elevated lactic acid levels, mild leukocytosis with neutrophilia, a slight increase in transaminases (not exceeding twice the normal value), and preserved renal function. While in the emergency department, he had two bloody bowel movements, without developing hemodynamic instability. A contrast-enhanced abdominal computed tomography (CT) scan was proposed to assess active bleeding and determine further therapeutic actions based on the results. The patient refused contrast injection. The scan revealed pneumatosis in the colonic wall and mild pneumoperitoneum.

The patient was admitted with a diagnosis of colitis with signs of pneumoperitoneum. A conservative treatment approach was prescribed. The patient was kept on complete fasting with total parenteral nutrition, analgesia, and antibiotic therapy (ciprofloxacin and metronidazole). His clinical parameters gradually returned to normal, and he tolerated oral intake without pathological bowel movements. He

was discharged 8 days after admission.

Hydrogen peroxide is an over-the-counter oxidizing antiseptic solution medically indicated for use on superficial skin wounds and as a mouth rinse after dental extractions in patients older than 12 years.

Specific toxic oral dose levels for this substance are unknown. In adults, as opposed to the pediatric population, more severe exposures are typically observed due to intentional intake of larger amounts or accidental exposure to higher concentrations in occupational settings, making severe symptoms more likely in adults (gas distension, abdominal pain, nausea, vomiting, hypotension, and gas embolism with altered mental status and neurological changes^{1,2}).

In our patient's case, the ingested doses were not sufficient to cause intoxication, likely because he diluted it in water and the number of days of ingestion was insufficient to cause toxicity.

The caustic injuries caused by hydrogen peroxide result from its direct

cytotoxicity on tissues, potentially leading to ulceration and intestinal perforation with consequent gas embolism. Therefore, its use in closed cavities is contraindicated.

There is no antidote for this substance, and dialysis is ineffective.¹ A literature review showed that conservative treatment was the most frequently chosen option, successfully resolving the condition.^{3,5}

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On "Evaluation of an emergency coordination center training intervention for staff providing telephone assistance for lay persons applying cardiopulmonary resuscitation in out-of-hospital emergencies"

On "Evaluation of an emergency coordination center training intervention for staff providing telephone assistance

for lay persons applying cardiopulmonary resuscitation in out-of-hospital emergencies"

To the Editor,

We have read with interest the article "Evaluation of an emergency coordination center training intervention for staff providing telephone assistance for lay persons applying cardiopulmonary resuscitation in out-of-hospital emergencies" by Fraile et al., published in this journal.¹

First, we would like to congratulate the authors, as the study opens new lines of research regarding the

training of emergency dispatchers in providing telephone-guided assistance during cardiopulmonary arrest (CPA).

The study quantitatively highlights the importance of training for adherence to clear protocols, their orderly execution, and the improvement in early and systematic assistance in the event of CPA—whether adult or pediatric.

Moreover, the study introduces a quality- and simplicity-enhancing element: the use of checklists to ensure the orderly completion of all steps in the protocol. We believe this is a very interesting aspect, both as a

tool for the health care dispatcher (HD) and for subsequent call reviews from a quality assurance perspective. These tools could be directly implemented in the management software used by emergency coordination centers (ECCs), so that the HD would not have to rely on external tools and instead access this information directly from their work interface—or even have it displayed automatically by the software.

Furthermore, these measures could be extrapolated to other autonomous communities, allowing for a multi-center study with a larger sample size, enabling more efficient comparison of results and the inclusion of additional variables such as timing across the different phases of CPA.

On the other hand, we observed that the difference between the control group (CG) and the intervention group (IG) for item 1, “Is there an AED nearby?” is null ($p = 1$), and in both cases $n = 1$. It may be advisable to place greater emphasis on instructing the first responder to locate and use an automated external defibrillator (AED) if available. To this end, the

HD can rely on existing tools, considering that regulations mandate the registration and geolocation of all public AEDs installed outside health care settings.^{2,3} This information could be integrated into ECC systems to assist in the instructions given by the HD.

This study opens an intriguing avenue of research: extending training even to non-health care staff working at 1-1-2 centers who handle the initial reception of the call, thus enabling faster identification of CPA and shortening response times. This would align with the guidelines of the European Resuscitation Council (ERC)⁴ and improve individual survival rates.⁵

These improvement aspects should undergo regular analysis and incorporate any updates or new guidelines as they are published.

In conclusion, this study provides an interesting and measurable perspective on the training of emergency dispatchers in telephone-assisted CPR techniques and opens new lines of work to further improve CPR outcomes in Spain.^{6,7}

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Editor in Charge:

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Pulmonary ultrasound in prehospital emergency care: a key tool for decision-making

Ecografía pulmonar en urgencias extrahospitalarias: una herramienta a considerar en la toma de decisiones

To the Editor,

In Spain, there has been a clear commitment to bringing the hospital closer to the patient, deploying as many resources as possible to the point of initial care. We are well aware of the competencies that clinical

ultrasound affords emergency physicians, with lung ultrasound being a crucial tool in this context.¹ Performing ultrasound at the point of emergency care not only enhances diagnostic capacity in time-sensitive conditions but also significantly improves treatment decisions.² There are numerous clinical scenarios in which lung ultrasound is indicated; among them, we would highlight its application in cases of acute dyspnea, particularly using the BLUE (Bedside Lung Ultrasound in Emergency) protocol.³ In the clinical management of acute respiratory failure, incorporating point-of-care ultrasound allows for accurate diagnosis of

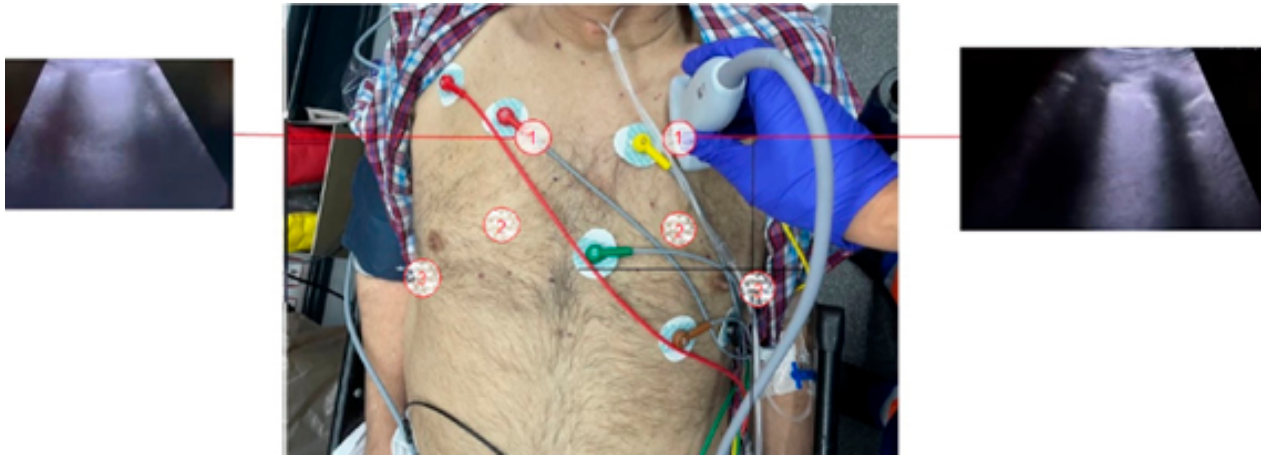


Figure 1. BLUE protocol. Point-of-care lung ultrasound showing a consolidation image in the left anterosuperior plane.

community-acquired pneumonia, clearly distinguishing it from other entities such as COVID-19-associated viral pneumonia.⁴ Furthermore, this tool facilitates early identification of complications such as pleural effusions and confirmation of the presence of pneumothorax—whether simple or tension.⁵

We present the case of a 69-year-old man, institutionalized due to senile dementia but independent in basic activities of daily living (ADLs). His past medical history included hypertension, hypercholesterolemia, and ischemic heart disease. A family member contacted emergency services after finding the patient on the street with reduced consciousness following a vasovagal syncope, along with food-related vomiting. An advanced life support ambulance was dispatched with suspected stroke code activation, with a response time of 6 minutes. Upon arrival, the patient was in poor general condition: drowsy, with pale mucous membranes, and tachypneic at 22 breaths per minute. He was conscious with a Glasgow Coma Scale (GCS) score of 11. After placing him in a supine position, vital signs were recorded: blood pressure 73/42 mmHg, heart rate 80 bpm, oxygen saturation 88% on room air, and

temperature 38.1°C. The patient moved all four limbs and had no associated dysarthria.

He was, then, transferred to the ambulance, where additional tests were performed. A rapid nasopharyngeal swab test for SARS-CoV-2 turned out negative. A lung ultrasound using a convex probe and following the BLUE protocol showed preserved bilateral pleural sliding, pleural thickening with consolidation in the left anterosuperior plane, and the presence of focal B-lines (< 5 per field), without any evidence of pleural effusion (Figure 1). The ECG showed sinus rhythm at 90 bpm with no acute repolarization abnormalities.

A peripheral IV line was inserted, and the patient received IV fluids, antipyretics, and antiemetics. The receiving hospital was notified of the activation of a SEPSIS code (qSOFA: 3 points). Upon hospital transfer, the patient was stabilized: blood pressure 98/53 mmHg, oxygen saturation 94% on FiO₂ 26%, heart rate 75 bpm, respiratory rate 16 breaths per minute, and GCS 14.

We believe that clinical experiences like this one underscore the value of lung ultrasound in both in-hospital and out-of-hospital emergency settings. This represents a revolution in

emergency care workflows,⁶ enhancing the diagnostic correlation between clinical findings and imaging, allowing for rapid diagnoses in dyspneic patients, and enabling the early initiation of treatment. It also supports decision-making regarding hospital transfers versus outpatient management.

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A nonketotic hyperglycemic hemichorea emergency

Hemicorea hiperglucémica no cetósica en emergencias

To the Editor,

Diabetes mellitus encompasses metabolic disorders resulting from chronically elevated blood glucose levels. Among its complications are those involving the nervous system (central or peripheral), one of which is diabetic foot. We present a rare neurological complication: non-ketotic hyperglycemic hemichorea.

A 91-year-old woman, independent in basic activities of daily living and with good cognitive function, had a past medical history of hypertension. She presented to the ED with a 7-day history of temporal-spatial disorientation and predominantly nocturnal agitation, attributed to a urinary tract infection and previously treated empirically with antibiotics, without success, following outpatient follow-up. She subsequently experienced a decline in consciousness, involuntary movements in the left limbs, and vomiting within the 24 hours before coming to the ED.

On arrival, she presented with a blood pressure of 118/67 mmHg, heart rate of 79 bpm, was afebrile and eupneic; capillary glucose levels were over 500 mg/dL (glucometer). She showed signs of dehydration (dry skin and mucous membranes), somnolence, and a

Glasgow Coma Scale score of 10 (eye opening – 4, verbal response – 5, motor response – 1). Neurologically, she had mid-sized, reactive pupils without diplopia, possible right homonymous hemianopia, otherwise unremarkable cranial nerve findings, right brachio-crural hemiparesis with muscle strength 3/5, aphasia, and bilateral flexor plantar reflexes.

A non-contrast baseline brain computed tomography (CT) was requested (time-dependent disease ruled out due to evolution), showing marked hyperdensity of the right caudate nucleus and putamen (Figure 1), well-demarcated and not suggestive of hemorrhage. Based on the clinical context, the leading diagnostic consideration was non-ke-

tot hyperglycemic hemichorea. No CT signs of acute ischemic disease were observed.

Lab test results included: pH 7.35, bicarbonate (HCO_3) 22.2 mmol/L, lactate 3.6 mmol/L; hyperglycemia (1,118 mg/dL) with negative ketone bodies; worsening renal function (creatinine 3.28 mg/dL), likely prerenal (urinary fractional excretion of sodium < 1%), and hyponatremia (sodium 153 mmol/L). Other results were unremarkable. Due to the presence of non-ketotic hyperglycemia, intravenous insulin infusion, fluid therapy, and diuresis monitoring (via bladder catheterization) were initiated, resulting in progressive clinical improvement.

Hemichorea is part of the spectrum of choreiform dis-

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Figure 1. Axial slice from a non-contrast brain computed tomography (CT) scan.

orders (abnormal involuntary movements), and is extremely rare. The most frequent cause is ischemia, followed by non-ketotic hyperglycemia. It is more common in older adults, in women (male/female ratio 1:1.8), and in the Asian population.¹

Hemichorea occurs secondarily to decreased activity of the subthalamic nucleus (basal ganglia),² with hyperglycemia being responsible in patients with either undiagnosed or poorly controlled diabetes. Elevated glucose levels cause blood hyperviscosity, producing some degree of ischemia in the basal ganglia. This leads to decreased production of gamma-aminobutyric acid (GABA) and acetylcholine, disrupting physiological neuronal impulses (uncontrolled dopamine activity), which results in involuntary, continuous, irregular movements of varying amplitude.³

Hospital admission is usually required for treatment and monitoring. Ballistic movements resolve as glucose levels normalize, though complete resolution may vary. No pharmacologic treatment beyond insulin is indicated, although topiramate, haloperidol, or botulinum toxin may be considered in protracted cases.⁴ For disabling or refractory symptoms, stereotactic pallidotomy or deep brain stimulation are options.⁵ Although it is reasonable in cases such as this to initially rule out ischemic causes, metabolic etiology should also be considered — both in patients with known diabetes mellitus and in those in whom it has not yet been diagnosed or adequately treated.^{6,7}

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Simulation, virtual reality, and artificial intelligence in clinical training

Simulación clínica, realidad virtual e inteligencia artificial en la formación clínica

To the Editor,

The Spanish Ministry of Health has funded the creation of 677 new undergraduate medical school slots in public universities across Spain, with an investment of approximately 50 million euros, to reinforce the future physician workforce in Spain.¹ This undergraduate training should incorporate clinical simulation (CS) as a teaching tool.¹

Simulation has been defined as the technique of emulating the behavior of a

given situation using an analogous instrument, especially for training purposes. It seems evident that in specialties such as emergency and critical care medicine, anesthesia, obstetrics, surgery, nursing, and allied health professions, this educational resource is fundamental for undergraduate training, postgraduate education (for residents in medical and nursing specialties), and continuing education for health care professionals (retraining, recertification, introduction of new techniques, etc.). All of this contributes to improved patient safety.

CS began its development in the United States and Canada.² The first mannequin used was a life-size doll named Mrs. Chase, built in 1911 for Hartford

Hospital (Connecticut, USA) to train staff in dressing, turning, and transferring patients. In 1914, an improved version, Arabella, allowed training in peripheral venous access. In the 1940s, the U.S. military used a male version of the mannequin to teach hospital care techniques to medical personnel. However, it was Laerdal Medical that truly revolutionized the field by introducing its first mannequin, Resusci Anne, in 1960, designed to train health care professionals in mouth-to-mouth resuscitation and external cardiac massage.³

In Spain, CS was formally introduced through the IAVANTE Foundation of the Andalusian Regional Ministry of Health in the early 1980s and continued with the creation of the Center for Emergency Medicine

Studies in 1987, spearheaded by Quesada Suescun *et al.*⁴ At our School of Medicine, since 2018, over 1,500 5th- and 6th-year medical students have passed through the Advanced Clinical Simulation Center (CSCA) in Valladolid (Spain), achieving overall satisfaction scores > 9.6 out of 10.⁵

Recently, Leiphrakpam *et al.* proposed the types of simulations that should be conducted with medical students.⁶ Table 1 includes some of their recommendations, along with the scenarios we recreate at our CSCA. Training in emergency, critical care, or intensive medicine is a dynamic and continuous process involving complex knowledge, attitudes, and motor skills. When a simulation center is incorporated into this process, it provides an effective means to achieve the cognitive, affective, and psychomotor competencies required for the complexity of clinical practice involving critically ill patients in these specialized settings.⁷

Moreover, just as the use of the Resusci Anne mannequin marked a turning point in the teaching of basic cardiopulmonary resuscitation, the use of virtual reality has already brought about new changes in healthcare education. These advances should be integrated into the training of residents in the specialty of Emergency and Urgent Care Medicine (EMUE), intensive care medicine, other specialties, and allied health professions.⁸

Additionally, we must not overlook the use of artificial intelligence (AI) in medical applications, both in equipment⁹ and in clinical decision-making (e.g., severity prediction algorithms,

Table 1. Recommend types of simulation for medical students (modified from modificado de Leiphrakpam *et al.*)⁶

Task simulation	Standardized patient
Venous access	General physical examination
Intraosseous access	Semiology of different systems
Central line placement	Stroke
Intubation	Myocardial infarction
Lumbar puncture	Poisoning
Echocardiogram	Sepsis
Chest tube insertion	Polytrauma
Suturing	Hypoglycemia
Tracheostomy	Seizures
Epidural anesthesia	Dyspnea
Gynecological examination	Heart failure
Ultrasound-guided procedures	Anaphylaxis
Laparoscopic skills	Traumatic brain injury
Adult and pediatric monitoring	Gastrointestinal bleeding
Sedation	Smoke inhalation
Robotic surgery	Tachycardia
Endoscopy	Childbirth
Da Vinci robot	Mega code

triage, radiology, etc.), which is set to imminently transform healthcare delivery.¹⁰ Perhaps now is not the time to merely prepare for its use (with the known limitations related to the use of high-quality data that reflects the broad spectrum of patients and scenarios found in emergency and urgent care medicine),¹¹ but to actively incorporate AI into the EMUE training curriculum.

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