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# Spanish Translation and Cultural Adaptation of the Intensive Care Unit Delirium Playbook

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## ABSTRACT

**Background:** A lack of high-quality provider education hinders the delivery of standard-of-care delirium detection and prevention practices in the intensive care unit (ICU). To fill this gap, we developed and validated an e-learning ICU Delirium Playbook consisting of eight videos and a 44-question knowledge assessment quiz. Given the increasing Spanish-speaking population worldwide, we translated and cross-culturally adapted the playbook from English into Spanish.

**Objective:** To translate and culturally adapt the ICU Delirium Playbook into Spanish, the second most common native language worldwide.

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**Methods:** The translation and cross-cultural adaptation process included double forward and back translations and harmonization by a 14-person interdisciplinary team of ICU nurses and physicians, delirium experts, methodologists, medical interpreters, and bilingual professionals representing many Spanish-speaking global regions. After a preeducation quiz, a nurse focus group completed the playbook videos and posteducation quiz, followed by a semistructured interview.

**Results:** The ICU Delirium Playbook: Spanish Version maintained conceptual equivalence to the English version. Focus group participants posted mean (standard deviation) pre- and post-playbook scores of 63% (10%) and 78% (12%), with a 15% (11%) pre-post improvement ( $P=0.01$ ). Participants reported improved perceived competency in performing the Confusion Assessment Method for the ICU and provided positive feedback regarding the playbook.

**Conclusion:** After translation and cultural adaptation, the ICU Delirium Playbook: Spanish Version yielded significant knowledge assessment improvements and positive feedback. The Spanish playbook is now available for public dissemination.

**Keywords:**

delirium; critical illness; nursing education; early diagnosis; translating

Delirium, a form of acute brain failure characterized by fluctuating mental status, inattention, and disorganized thinking, is a common problem in the intensive care unit (ICU). Delirium affects up to 80% of mechanically ventilated patients

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During the preparation of this work, the authors did not use any GPT (generative pretrained transformer) or AI (artificial intelligence) programs.

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and is associated with devastating consequences, including increased hospital length of stay, longer time on the ventilator, and short- and long-term cognitive, physical, and mental health impairments (1–4).

Current guidelines outlined by the Society of Critical Care Medicine recommend that all adult ICU patients undergo daily delirium assessments with validated bedside tools such as the Confusion Assessment Method for the ICU (CAM-ICU) (5). Although the CAM-ICU is feasible and easy to perform, requiring no equipment and  $\leq 2$  minutes to complete, many ICUs struggle to maintain consistent and correct standard-of-care assessments (6). Studies have reported ICU delirium documentation rates as low as 38%, whereas others have noted up to half of nurse and physician providers feeling uncomfortable with performing the CAM-ICU (7, 8).

Despite delirium's prevalence and importance, most providers report receiving insufficient education on standard-of-care delirium detection and prevention practices (7–9). To fill this education gap, our interdisciplinary team developed the English-language ICU Delirium Playbook, a 60-minute e-learning module composed of eight instructional videos and a 44-question knowledge assessment quiz. This first-of-its-kind playbook demonstrated excellent psychometric properties and yielded significant pre–post quiz score improvements in focus group testing by ICU nurses (10). As part of the continued development and growth of the ICU Delirium Playbook, our team translated and culturally adapted the playbook into Spanish, the second most common native language

worldwide, with a rapidly expanding speaker population (11).

## METHODS

### Translation and Cultural Adaptation Process

Our translation and cultural adaptation process was based on the Beaton Guidelines, which were motivated by the rising need for multinational and multicultural research and developed to maximize conceptual equivalence between cross-cultural adaptations (12, 13).

### Forward Translation

Two bilingual native Spanish speakers (one pulmonary and critical care postdoctoral fellow [A.L.F.] with formal delirium training and one medical student [P.A.R.] with no delirium training) independently forward translated the English language ICU Delirium Playbook video scripts, video graphics, and corresponding quiz into Spanish. Subsequently, the two forward translators and four mediating, unbiased translators (an undergraduate student [B.D.D.L.], a pulmonologist [A.S.-A.], and two critical care nurse scientists [C.M.A.-N., M.I.F.-R.]) harmonized the two forward translations, resolving discrepancies to yield a synthesized forward translation. Finally, to develop a playbook in “neutral” Spanish while also addressing possible regional variations (e.g., Caribbean Spanish, Latin American Spanish, and Castilian Spanish) that may improve understandability worldwide, we engaged a multiregional team from Puerto Rico, Mexico, Peru, Spain, and Uruguay to review the finalized forward translation. This team held virtual meetings to discuss all language discrepancies, resolving each discrepancy via group consensus.

### Backward Translation

The final forward translation was independently back translated by two bilingual native English speakers who were also proficient in Spanish (an undergraduate student [L.R.-F.] and an internal medicine resident physician [J.W.]), neither of whom had formal delirium training or awareness of the original English version of the ICU Delirium Playbook. An English-speaking-only research coordinator (J.M.F.) then harmonized the two back translations, with as-needed input from developers of the original playbook (H.M., B.B.K.).

### Validated Quiz Translation Verification

After forward and backward translation of the ICU Delirium Playbook (video script, graphics, and quiz), we engaged bilingual ICU communication experts (including harmonizers of the forward translation [C.M.A.-N., M.I.F.-R., A.S.-A.] and two established Spanish-English hospital medical interpreters [E.H., R.E.M.], who were recruited for this task) to ensure the understandability and fidelity of the quiz by a global Spanish-speaking provider population. To optimize the translation of the validated quiz to Spanish, each expert independently compared the original questions and responses with the harmonized version, making the required edits to yield a final Spanish-language quiz. This final Spanish-language version of the ICU Delirium Playbook was made available online ([www.icudeliriumplaybook.com](http://www.icudeliriumplaybook.com)).

### Focus Group Evaluation of the Spanish Version of the ICU Delirium Playbook

Seven bedside adult ICU nurses, each with over 1 year of experience, volunteered to assess the Spanish version of the ICU Delirium Playbook. They were recruited using the snowball sampling technique through word-of-mouth

recommendations. Six of these Puerto Rican nurses were bilingual (English and Spanish), and three had over 5 years of bedside ICU experience. Although delirium education and/or experience were not criteria for participation, after the focus group, all seven reported never having received delirium training during their years of ICU service.

During a 3-hour focus group Zoom teleconference conducted entirely in Spanish by senior members of our team (M.I.F.-R. and C.M.A.-N.), participants first completed the translated 44-question quiz as a prevideo evaluation and subsequently completed the entire eight-video translated playbook with repeat completion of the same quiz. Each quiz was analyzed in real time, and all participants were informed of their results immediately after quiz completion (i.e., before viewing the video and repeating the quiz after completion of the video). Prevideo quiz items with >50% participant incorrect answers and postvideo items with  $\geq 20\%$  incorrect answers were flagged for subsequent focus group discussion.

After completion of the second quiz (i.e., completed postvideo) by all focus group participants, a senior research team member (M.I.F.-R.) led a group discussion to gain feedback regarding unclear wording and/or translations of specific quiz items (as described above). Volunteers were subsequently given a hyperlink to complete a short (<5 min) optional evaluation of the playbook and their perceived pre- and post-playbook delirium competencies, including CAM-ICU documentation.

### Analysis

Continuous variables (e.g., quiz scores) yielded by the focus group were reported as means and standard deviations, and proportions were used to report

categorical variables (e.g., postsurvey responses). A Shapiro-Wilk test was used to confirm normality in pre–post quiz score changes before comparison with a paired two-sided Student’s *t* test. Verbal commentary and feedback were assessed using Braun and Clarke’s thematic analysis approach. All quantitative analyses were completed using Stata version 17.0 (StataCorp), with  $P < 0.05$  denoting statistical significance. With the project’s objective centered on educating providers about standard-of-care bedside practices, the institutional review board at the University of Puerto Rico Medical Sciences Campus approved the protocol number 2304100381 through an expedited review.

## RESULTS

### Translation and Cross-Cultural Adaptation

While developing a final version of the ICU Delirium Playbook: Spanish Version (Table 1), most translation and cross-cultural adaptation modifications occurred during forward translation harmonization. For example, we elected to use “delirium” instead of “delirio,” because the word “delirium” was used in the original CAM-ICU Spanish translation study, “delirium” was reported by team members to be more commonly used in Spanish-speaking ICUs, and “delirio” could as be interpreted erroneously to mean “delusional” (14). In addition, the word “feature,” referring to Features 1, 2, 3, and 4 of the CAM-ICU, was initially translated to “característica” but was changed to “criterio” to maintain consistency with the validated Spanish-language version of the CAM-ICU (14). Minimal changes were made during the back-translation process and the expert committee review (Table 2).

### Focus Group Discussion, Performance, and Evaluation

Overall, seven volunteers agreed to focus group participation, all completing the pre- and postvideo quizzes. All participants were present for the post-playbook discussions, although one participant was briefly absent due to an internet connectivity issue. All participants endorsed no need for edits to improve the quiz questions flagged for review because of incorrect responses (as described previously).

Regarding the quiz, the participants posted mean (standard deviation) pre- and post-playbook scores of 63% (10%) and 78% (12%), with a 15% (11%) pre–post difference ( $P = 0.01$ ). Playbook results were further separated by the seven content domains, which showed statistically significant pre–post playbook score improvements in “Criterio 4 del CAM-ICU” and “CAM-ICU Positivo: ¿Ahora qué?” (Table 3). Nonsignificant pre–post score improvements were observed in content domains focusing on the three other CAM-ICU features (criterios).

All seven participants completed the post-playbook evaluation (Table 4). All seven (100%) reported increased levels of comfort in performing the CAM-ICU and managing critically ill patients with delirium. Qualitatively, all participants believed the playbook translation was “clear,” with no major issues. One comment regarded the word “persiana” (English = “blind”) being potentially unfamiliar to younger providers. However, all participants understood this word, and it was therefore left unchanged.

All participants provided positive comments regarding the e-learning platform, its accessibility, clarity, and clinical relevance (Table 5). However, two participants mentioned that the “Completing the

**Table 1.** ICU Delirium Playbook: Spanish Version content domains and learning objectives

Content Domain	Module	Length (mm:ss)	Objetivos de Aprendizaje (Learning Objectives)
Criterio 1 del CAM-ICU: Cambio Agudo o Curso Fluctuante del Estado Mental (Feature 1: Acute Onset of Mental Status Changes)	1	04:08	<ul style="list-style-type: none"> <li>• Describir las fuentes de información que pueden identificar si el estado mental del paciente se ha alterado con respecto su estado de base (p.ej., colaboración del paciente, familia, historia clínica electrónica)</li> <li>• Evaluar si el Criterio 1 (Cambio Agudo o Curso Fluctuante del Estado Mental) es positivo o negativo</li> <li>• Saber que es necesario proceder con el CAM-ICU si el Criterio 1 (Cambio Agudo o Curso Fluctuante del Estado Mental) es positivo</li> </ul>
Criterio 3 del CAM-ICU: Alteración del Nivel de Consciencia (RASS) (Feature 3: Altered Level of Consciousness)	2*	05:53	<ul style="list-style-type: none"> <li>• Utilizar correctamente la Escala de Agitación y Sedación de Richmond (RASS)</li> <li>• Comprender que el RASS se puede utilizar para evaluar a todos los pacientes en estado crítico (p. ej., ventilados mecánicamente y/o sedados)</li> <li>• Evaluar el Criterio 3 (Alteración del nivel de consciencia) como positivo o negativo según la puntuación de RASS</li> <li>• Saber proceder con el CAM-ICU si el Criterio 3 (Alteración del nivel de consciencia) es positivo</li> </ul>
Criterio 2 del CAM-ICU: Inatención (Feature 2: Inattention)	3*	04:22	<ul style="list-style-type: none"> <li>• Realizar correctamente la evaluación C-A-S-A-B-L-A-N-C-A</li> <li>• Evaluar el Criterio 2 (Inatención) como positivo o negativo según la cantidad de errores que cometa el paciente</li> <li>• Reconocer cuando se necesitan adaptaciones al Criterio 2 (Inatención)</li> <li>• Saber que hay que continuar con el CAM-ICU si el Criterio 1 (Cambio Agudo o Curso Fluctuante del Estado Mental) y el Criterio 2 son positivos</li> </ul>
Criterio 4 del CAM-ICU: Pensamiento Desorganizado (Feature 4: Disorganized Thinking)	4	05:47	<ul style="list-style-type: none"> <li>• Realizar correctamente la prueba de los "Dedos" y la evaluación de las Preguntas Sí/No</li> <li>• Evaluar si el Criterio 4 (Pensamiento Desorganizado) es positivo o negativo basado en el comando de "Dedos" y la evaluación de Preguntas Sí/No</li> <li>• Reconocer cuándo se necesitan adaptaciones al Criterio 4 (Pensamiento Desorganizado)</li> <li>• Saber cómo proceder con el CAM-ICU si el Criterio 4 (Pensamiento Desorganizado) es positivo</li> </ul>
Delirium y el CAM-ICU: Aciertos y Errores (Delirium and the CAM-ICU: Pearls and Pitfalls)	5	03:02	<ul style="list-style-type: none"> <li>• Saber cuándo documentar el CAM-ICU como "no apto para evaluar"</li> <li>• Explicar las indicaciones y contraindicaciones para realizar evaluaciones regulares de delirium en un paciente</li> <li>• Enumerar los recursos en línea para las traducciones y modificaciones de CAM-ICU</li> </ul>
Realizando el CAM-ICU: Ejemplo #1 y #2 (Completing the CAM-ICU: Examples #1 and #2)	6	10:16 <sup>†</sup>	<ul style="list-style-type: none"> <li>• Demostrar capacidad de evaluación con el CAM-ICU basado en las evaluaciones de cambios en el estado mental (Criterio 1), inatención (Criterio 2), nivel de consciencia (Criterio 3) y pensamiento desorganizado (Criterio 4) (si es necesario)</li> </ul>



Table 1. Continued.

Content Domain	Module	Length (mm:ss)	Objetivos de Aprendizaje (Learning Objectives)
CAM-ICU Positivo: Mi Paciente Está en Delirium, ¿Ahora Qué? (CAM-ICU Positive: My patient is delirious. Now what?)	7	11:18	<ul style="list-style-type: none"> <li>• Explicar la importancia de la detección y el monitoreo rutinario de los pacientes en busca de delirium</li> <li>• Identificar intervenciones (p.ej., minimización de la sedación) para manejar y prevenir el delirium</li> <li>• Reconocer a los pacientes elegibles para intervenciones de movilización temprana</li> <li>• Entender la importancia de implementar intervenciones ambientales y no farmacológicas para sincronizar los ritmos de sueño/vigilia</li> </ul>

*Definition of abbreviations:* CAM-ICU = Confusion Assessment Method for the Intensive Care Unit; ICU = intensive care unit; RASS = Richmond Agitation-Sedation Score.

\*Criterio 3 precedes Criterio 2 because required physical contact for Criterio 2 can invalidate the verbal responsiveness evaluation portion of Criterio 3.

†Includes two videos.

CAM-ICU” domain was challenging for them. Also, two participants highlighted the importance of expert consultation to enhance the precision of delirium assessment, especially for nurses who have not previously been exposed to it. On the basis of participant feedback, suggestions to improve graphics on CAM-ICU scoring were subsequently integrated into the videos.

## DISCUSSION

Despite being a common problem in the ICU setting, detection and prevention of delirium remains a challenge, in part because of a lack of adequate provider education (1–4, 7, 8, 15, 16). To address this education gap, we developed and validated an English version of the e-learning ICU Delirium Playbook (13, 14). In this article, we describe the subsequent translation and cultural adaptation of the playbook into Spanish, which is now available for widespread use ([www.icudeliriumplaybook.com](http://www.icudeliriumplaybook.com)).

Although a Spanish-language version of the CAM-ICU was developed and validated in 2010, delirium screening in primarily Spanish-speaking ICUs is poor,

with one study in Spain reporting only 21% of 166 ICUs performing standard-of-care screening for delirium (14, 17). In addition, despite the CAM-ICU being the most commonly used delirium assessment tool in Latin America, a survey of 854 ICU providers from 12 Latin American countries revealed that only 19% of them regularly use the CAM-ICU, potentially leading to missed delirium (18, 19). Moreover, in English-speaking countries, ICU providers report discomfort with performing delirium assessments in adults with low English proficiency, with 56% of providers in one study reporting lack of confidence in evaluating their patients with low English proficiency for delirium (20). Ultimately, Spanish-speaking providers worldwide would benefit from a Spanish-language delirium education tool, because delirium screening and detection are a challenge in ICUs, both within the United States and internationally.

Given the rising Spanish-speaking population throughout the world (including in primarily English-speaking countries), it is crucial for the lack of scalable provider education to be addressed (21, 22). Prior efforts to address this knowledge gap



**Table 2.** Example translations and cross-cultural adaptations in ICU Delirium Playbook: Spanish Version

Original	Translations				Reasoning
	Forward	Reconciled	Backward	Final	
I admitted her	FT1: La ingresé FT2: Yo la admití	Desde su ingreso	BT1: Since her admission BT2: Since her entry	Desde su ingreso	"Admitti" can also mean "to confess" while "ingreso" better retained the intended meaning.
Prehospital baseline	FT1: Estado mental normal antes FT2: Estado mental normal	El estado mental...previo a la hospitalización	BT1: Mental status prior to hospitalization BT1: Mental state ...prior to hospitalization	El estado mental de base	No reference of "baseline" on initial translations, so this was added.
Score feature 2	FT1: Sumar los puntos para la característica dos FT2: Calificar la característica 2	Evaluar el Criterio 2	BT1: Evaluate Criterio 2 BT2: Evaluate Criterio 2	Evaluar el Criterio 2	"Sumar" could be interpreted as "add" and "calificar" could be interpreted as "qualify", while "evaluar" better retained the intended meaning.
Feature	FT1: Característica FT2: Característica	Criterio	BT1: Criterio BT2: Criterio	Criterio	"Criterio" used on the validated Spanish CAM-ICU translation.
Delirium	FT1: Delirio FT2: Delirio	Delirium	BT1: Delirium BT2: Delirium	Delirium	"Delirio" is a direct translation, but "delirium" is used in the validated Spanish CAM-ICU translation and in ICU clinical settings. "Delirium" is easier to understand across regional varieties of the Spanish language.

*Definition of abbreviations:* BT = back translation (translators 1 and 2); CAM-ICU = Confusion Assessment Method for the Intensive Care Unit; FT = forward translation (translators 1 and 2); ICU = intensive care unit.

**Table 3.** ICU Delirium Playbook: Spanish Version quiz performance ( $N = 7$  nurses)

Content Domain	Questions ( $n$ )	Mean % Correct (SD)		Difference, % (SD)	$P$ Value*
		Before Video	After Video		
Criterio 1: Cambio Agudo o Curso Fluctuante del Estado Mental (Feature 1: Acute Onset of Mental Status Changes)	6	64 (26)	67 (24)	2 (28)	0.9
Criterio 2: Inatención (Feature 2: Inattention)	5	51 (20)	63 (21)	11 (20)	0.6
Criterio 3: Alteración del Nivel de Consciencia (RASS) (Feature 3: Altered Levels of Consciousness)	9	81 (12)	87 (16)	6 (19)	0.9
Criterio 4: Pensamiento Desorganizado (Feature 4: Disorganized Thinking)	6	45 (8)	79 (16)	33 (17)	0.02
Delirium y el CAM-ICU: Aciertos y Errores (Delirium and the CAM-ICU: Pearls and Pitfalls)	2	50 (29)	71 (27)	21 (39)	0.2
Realizando el CAM-ICU: Ejemplo #1 y #2 (Completing the CAM-ICU: Examples #1 and #2)	8	64 (13)	79 (17)	14 (18)	0.3
CAM-ICU Positivo: Mi Paciente Está en Delirium, ¿Ahora Qué? (CAM-ICU Positive: My patient is delirious. Now what?)	8	64 (20)	86 (9)	21 (25)	0.007
<b>Entire Exam</b>	<b>44</b>	<b>63 (10)</b>	<b>78 (12)</b>	<b>15 (11)</b>	<b>0.01</b>

*Definition of abbreviations:* CAM-ICU = Confusion Assessment Method for the Intensive Care Unit; ICU = intensive care unit; RASS = Richmond Agitation–Sedation Scale; SD = standard deviation.

\*Calculated using paired Student's  $t$  test.

have involved e-learning modules, didactics, and bedside teaching, most of which are limited by scale and have focused on English-speaking populations (23, 24). To our knowledge, there are currently no provider education tools for delirium detection and prevention in Spanish-speaking audiences, reiterating the importance of this translation and cultural adaptation. Our ultimate goal is for the Spanish version of the ICU Delirium Playbook to bridge this vital knowledge–practice education gap for Spanish-speaking ICU providers and patients worldwide.

Our translation and cross-cultural adaptation process strictly followed published

guidelines (12, 13, 25–27). During translation, synthesis, and back translation of the playbook, grammatical changes were made, as well as adaptations that would be more applicable to a broad Spanish-speaking healthcare audience. In addition, our international expert team meticulously reviewed the final translated version and ensured semantic and conceptual equivalence with the original English playbook. The focus group reinforced the playbook's clarity, with all participants feeling the videos were clear and translations adequate. Encouragingly, provider comfort level with completing the CAM-ICU and pre- versus posttest scores improved after completing our playbook, suggesting

**Table 4.** Self-reported competency after completing the ICU Delirium Playbook: Spanish Version (N = 7 Nurses)

Rating	n (%)
Ability to perform CAM-ICU on patients who are:	
Critically ill	
Much more comfortable than before	4 (57)
Somewhat more comfortable as before	3 (43)
Moderately to deeply sedated	
Much more comfortable than before	5 (71)
Somewhat more comfortable as before	2 (29)
Ventilated and semiawake	
Much more comfortable than before	4 (57)
Somewhat more comfortable as before	3 (43)
Encephalopathic	
Much more comfortable than before	4 (57)
Somewhat more comfortable as before	3 (43)
History of stroke	
Much more comfortable than before	4 (57)
Somewhat more comfortable as before	3 (43)
History of dementia	
Much more comfortable than before	4 (57)
Somewhat more comfortable as before	3 (43)
Ability to manage critically ill patients with delirium	
Much more comfortable than before	4 (57)
Somewhat more comfortable as before	3 (43)

*Definition of abbreviations:* CAM-ICU = Confusion Assessment Method for the Intensive Care Unit; ICU = intensive care unit.

efficacy, although this will need to be further studied.

### Strengths and Limitations

This effort had many strengths, in particular engagement of an international expert team of native Spanish speakers to optimize playbook reach and understandability. Despite this strength,

there were several limitations. First, our participants consisted of seven ICU nurses from Puerto Rico, all of whom spoke the same regional variety of Spanish, which could be perceived to limit playbook generalizability to other regions. However, to address this limitation, the playbook was translated and culturally adapted by experts from not only Puerto Rico but

**Table 5.** Focus group feedback regarding the ICU Delirium Playbook: Spanish Version

Theme 1: Video Usefulness	
<i>Español 1:</i> Participante 7: “me ayudó bastante porque a pesar que llevo mucho tiempo trabajando en cuidado intensivo en un hospital pues nunca se había hablado tan detalladamente sobre este tema a pesar de que estábamos utilizando la misma escala que se nos está presentando. Es como una herramienta que estuve utilizando durante años, sin embargo, ahora entiendo cómo es que se puede utilizarla correctamente.”	<i>English Translation 1:</i> Participant 7: “it helped me a lot because, despite the fact that I have been working in intensive care in a hospital for a long time, this topic had never been discussed in such detail even though we were using the same scale that is being presented to us. It’s like a tool I’ve been using for years; however, now I understand how it can be used correctly.”
<i>Español 2:</i> Participante 3: “es excelente yo lo recomendaría... Me gustaría presentarlo a mis compañeros, de verdad, los que no saben cómo identificar un CAM-ICU ..., eso les ayudaría bastante de manera más visual porque por lo menos yo pude aprender un poquito más, porque yo aprendí los otros días como identificar un CAM-ICU y con esto [ICU Playbook] pude; me ayudó un poco más a poderlo identificar ...”	<i>English Translation 2:</i> Participant 3: “it’s excellent, I would recommend it... I would really like to present it to my colleagues, those who don’t know how to identify a CAM-ICU ...; that would help them a lot in a more visual way because at least I was able to learn a little more, because I learned the other days how to identify a CAM-ICU and with this [ICU Playbook] I was able; it helped me a little more to be able to identify it” ...
<i>Español 3:</i> Participante 3: “El Playbook, tal como está presentado, está completo y es útil...”	<i>English Translation 3:</i> Participant 3: “The Playbook, as presented, is complete and helpful...”
Theme 2: Playbook Translation (Clarity)	
<i>Español 1:</i> Participante 5: “Para mí la traducción está clara”. “Los videos fueron claros y específicos. Se podía ... entender y comparto la opinión del compañero que indicó que después del ejemplo... se tiene bien claro ... el mensaje que quieren transmitir.”	<i>English Translation 1:</i> Participant 5: “For me the translation is clear”. “The videos were clear and specific. It could be ... understood and I share the opinion of the comrade who indicated that after the example... it was very clear ... the message they wanted to transmit is very clear.”
<i>Español 2:</i> Participante 1: “Para mí también está clara la traducción.”	<i>English Translation 2:</i> Participant 1: “The translation is also clear to me.”
<i>Español 3:</i> Participante 3: “Para mí la traducción sí, para mí también está clara.”	<i>English Translation 3:</i> Participant 3: “For me the translation is also clear.”
<i>Español 4:</i> Participante 7: “Para mí está clara, solamente hay un video que vi que dijeron la palabra ‘persiana’ ..., no sé si la generación de ahora reconozcan esa palabra ...”	<i>English Translation 4:</i> Participant 7: “For me it is clear, there is only one video that I saw that they said the word ‘persiana (blind)’ ..., I don’t know if the generation of now recognizes that word ...”
Theme 3: Integration of Virtual Strategy	
<i>Español 1:</i> Participante 4: “este tipo de educación además es accesible para el aprendizaje en línea, además que permite conectar no solo con la población puertorriqueña, sino que esto da paso a la población internacional.”	<i>English Translation 1:</i> Participant 4: “this type of education is also accessible for online learning, as well as allowing to connect not only with the Puerto Rican population, but this gives way to the international population.”
<i>Español 2:</i> Participante 5: “Creo que la estrategia en línea del Playbook es suficiente. No lleva mucho tiempo, es clara y fácil de seguir.”	<i>English Translation 2:</i> Participant 5: “I think the online strategy of the Playbook is sufficient. It doesn’t take much time and is clear and easy to follow.”
<i>Español 3:</i> Participante 7: “Las estrategias digitales son esenciales hoy en día debido a la población actual de profesionales de la salud.”	<i>English Translation 3:</i> Participant 7: “Digital strategies are essential nowadays due to the current healthcare professionals’ population.”
<i>Español 4:</i> Participante 9: “Por lo menos para mi estuvo bastante interesante el hecho de ver videos tener un ejemplo y la explicación y luego entonces la pregunta.”	<i>English Translation 4:</i> Participant 9: “At least for me it was quite interesting to see the videos, have an example and an explanation and then the question.”

Table 5. Continued.

Theme 4: Clinical Relevance	
<i>Español 1:</i> Participante 4: "Por ende, ajustamos aquí [con el <i>Playbook</i> ] las destrezas clínicas para el diagnóstico temprano para ayudar a nuestros pacientes en estimado, manejo y prevención."	<i>English Translation 1:</i> Participant 4: "Therefore, we adjust here [with the <i>Playbook</i> ] the clinical skills for early diagnosis to help our patients in assessment, management, and prevention."
<i>Español 2:</i> Participante 3: "Estoy de acuerdo; el <i>Playbook</i> es una guía valiosa. Me prepara para realizar correctamente el CAM-ICU, pero la práctica me ayuda a ser más competente en la identificación del delirio."	<i>English Translation 2:</i> Participant 3: "I agree; the <i>Playbook</i> is a valuable guide. It prepares me to perform the CAM-ICU correctly, but practice helps me become more proficient in identifying delirium."
<i>Español 3:</i> Participante 9: "Encuentro útil tener los videos e información disponibles en el <i>Playbook</i> . Sin embargo, es crucial practicar e implementar los conocimientos adquiridos. La práctica hace al maestro."	<i>English Translation 3:</i> Participant 9: "I find it helpful to have the videos and information readily available in the <i>Playbook</i> . However, it's crucial to practice and implement the knowledge gained. Practice makes perfect."
Theme 5: Playbook Challenges	
<i>Español 1:</i> Participante 1: "en la parte específica de cómo determinar si es [CAM-ICU] positivo o negativo me confundió un poco, o sea, si lo veo por primera vez, el cómo determino si el cambio es positivo o negativo, como que esa parte del video no me quedo muy clara." " ... en el video del ejemplo 2, donde tuve que determinar si es positivo o negativo. Como que entiendo que tal vez no está bien redactado en el cuadrado pequeño, que te da una explicación, pero como que me pierdo un poco, tengo que estar dándole cabeza para entender, el concepto."	<i>English Translation 1:</i> Participant 1: "in the specific part of how to determine if [CAM-ICU] is positive or negative, it confused me a bit, that is, if I see it for the first time, how do I determine if the change is positive or negative, like that part of the video was not very clear to me... in the video of the example 2, where I had to determine if it is positive or negative. I kind of understand that maybe it's not well written in the small box, which gives you an explanation, but I kind of get lost a bit, I have to put my head into it to understand the concept."
<i>Español 2:</i> Participante 7: "Sí, yo por lo menos en esos videos finales, los de ejemplos, también me perdí un poquito con lo mismo que habló el compañero. Tenía mis dudas de cómo entonces sabíamos si el <i>delirium</i> iba a ser positivo o negativo, porque la explicación de cada criterio estuvo perfecta. Esa parte final, de definirse el <i>delirium</i> positivo o negativo, como que me perdí un poco."	<i>English Translation 2:</i> Participant 7: "Yes, at least in those final videos, the ones with examples, I also got a little lost with the same thing that the partner spoke about. I had my doubts about how we knew then if the delirium was going to be positive or negative because the explanation of each criterion was perfect. That final part of defining positive or negative delirium as I got a little lost."
<i>Español 3:</i> Participante 6: "el verlo tan estratificado de una primera vez, pues quizás, es <i>hard time</i> el poderlo visualizar de una."	<i>English Translation 3:</i> Participant 6: "seeing it so stratified for the first time, well, perhaps, it is hard time to be able to visualize it all at once."
Theme 6: Playbook Recommendations	
<i>Español 1:</i> Participante 5: "Sí [práctica presencial], que siempre haya alguien con el dominio del tema, que pueda guiar y más cuando sea una persona que nunca haya escuchado de lo que es el CAM-ICU, siempre, pues, para aclarar."	<i>English Translation 1:</i> Participant 5: "Yes [face-to-face practice], that there is always someone with mastery of the topic, who can guide and even more so when it is a person who has never heard of what the CAM-ICU is, always, then, to clarify."
<i>Español 2:</i> Participante 7: "tener un curso presencial más detallado como complemento también podría ser beneficioso. Personalmente, en las sesiones de educación que imparto, los participantes siempre aprecian el énfasis en la formación presencial. ... Específicamente para las personas que están comenzando, a lo mejor no tienen dominio total del tema, pues, la manera presencial le puede ayudar, pero esto sería excelente de educación continua para alguien que ya tenga el conocimiento y reforzar, repasar el concepto pues está super completo para mí."	<i>English Translation 2:</i> Participant 7: "having a more detailed in-person course as a complement could also be beneficial. Personally, in the education sessions I conduct, participants always appreciate the emphasis on <i>in-person training</i> . ... Specifically for people who are starting out, maybe they do not have full domain of the topic, so the face-to-face method can help them, but this would be an excellent continuing education for someone who already has the knowledge and reinforce, review the concept because it is super complete for me."

also Peru, Mexico, Spain, and Uruguay and did not require further edits after focus group evaluation. Second, during the focus group, one participant had issues with internet connectivity and was unable to access the playbook. This issue highlighted the potential challenge of accessing the e-learning module in resource-limited areas, which will be addressed during playbook dissemination. Finally, we saw a statistically significant improvement in only two playbook content domains, which was likely due to the small sample size. Despite this power limitation, we observed a general improvement in all pre–post quiz scores despite not meeting statistical significance. Moreover, quiz scores significantly improved in the “Feature 4: Disorganized Thinking” and “CAM-ICU Positive — Now What?” domains, both of which are critical for optimizing delirium detection and prevention practices. Playbook dissemination on a larger scale and among diverse provider populations will inform future additions and improvements to the dynamic e-learning module.

## Conclusion

We developed and validated the ICU Delirium Playbook to serve as a feasible and asynchronous e-learning module, with a total completion time of 60 minutes divided across seven discrete modules, for provider delirium detection and prevention education. After its development, we used a rigorous approach to translate and cross-culturally adapt the playbook into Spanish, the second most common primary language in the world and the second most common spoken language in the United States. The ICU Delirium Playbook: Spanish Version is now available for widespread use ([www.icudeliriumplaybook.com](http://www.icudeliriumplaybook.com)). Using similar methods, we anticipate subsequent translation of the playbook into other languages.

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## REFERENCES

1. Witlox J, Eurelings LSM, de Jonghe JFM, Kalisvaart KJ, Eikelenboom P, van Gool WA. Delirium in elderly patients and the risk of postdischarge mortality, institutionalization, and dementia: a meta-analysis. *JAMA* 2010;304:443–451.
2. Brummel NE, Vasilevskis EE, Han JH, Boehm L, Pun BT, Ely EW. Implementing delirium screening in the ICU: secrets to success. *Crit Care Med* 2013;41:2196–2208.
3. Ely EW, Shintani A, Truman B, Speroff T, Gordon SM, Harrell FE Jr, *et al*. Delirium as a predictor of mortality in mechanically ventilated patients in the intensive care unit. *JAMA* 2004; 291:1753–1762.
4. Pandharipande PP, Girard TD, Jackson JC, Morandi A, Thompson JL, Pun BT, *et al*; BRAIN-ICU Study Investigators. Long-term cognitive impairment after critical illness. *N Engl J Med* 2013; 369:1306–1316.
5. Devlin JW, Skrobik Y, Gélinas C, Needham DM, Slooter AJC, Pandharipande PP, *et al*. Clinical practice guidelines for the prevention and management of pain, agitation/sedation, delirium, immobility, and sleep disruption in adult patients in the ICU. *Crit Care Med* 2018;46:e825–e873.

6. Ely EW, Margolin R, Francis J, May L, Truman B, Dittus R, *et al.* Evaluation of delirium in critically ill patients: validation of the Confusion Assessment Method for the Intensive Care Unit (CAM-ICU). *Crit Care Med* 2001;29:1370–1379.
7. Trogrlić Z, Ista E, Ponssen HH, Schoonderbeek JF, Schreiner F, Verbrugge SJ, *et al.* Attitudes, knowledge and practices concerning delirium: a survey among intensive care unit professionals. *Nurs Crit Care* 2017;22:133–140.
8. Terry KJ, Anger KE, Szumita PM. Prospective evaluation of inappropriate unable-to-assess CAM-ICU documentations of critically ill adult patients. *J Intensive Care* 2015;3:52.
9. Blevins CS, DeGennaro R. Educational intervention to improve delirium recognition by nurses. *Am J Crit Care* 2018;27:270–278.
10. Makhija H, Fine JM, Pollack D, Novelli F, Davidson JE, Cotton SA, *et al.* Development and validation of an ICU delirium playbook for provider education. *Crit Care Explor* 2023;5:e0939.
11. Lane J. The 10 most spoken languages in the world. *Babbel Magazine* 2023 February 9 [accessed 2023 Aug 18]. Available from: <https://www.babbel.com/en/magazine/the-10-most-spoken-languages-in-the-world>.
12. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine* 2000;25:3186–3191.
13. Guillemin F, Bombardier C, Beaton D. Cross-cultural adaptation of health-related quality of life measures: literature review and proposed guidelines. *J Clin Epidemiol* 1993;46:1417–1432.
14. Tobar E, Romero C, Galleguillos T, Fuentes P, Cornejo R, Lira MT, *et al.* Confusion Assessment Method for diagnosing delirium in ICU patients (CAM-ICU): cultural adaptation and validation of the Spanish version [in Spanish]. *Med Intensiva* 2010;34:4–13.
15. Zamoscik K, Godbold R, Freeman P. Intensive care nurses' experiences and perceptions of delirium and delirium care. *Intensive Crit Care Nurs* 2017;40:94–100.
16. Devlin JW, Fong JJ, Howard EP, Skrobik Y, McCoy N, Yasuda C, *et al.* Assessment of delirium in the intensive care unit: nursing practices and perceptions. *Am J Crit Care* 2008;17:555–565. [Quiz, 566.]
17. García-Sánchez M, Caballero-López J, Ceniceros-Rozalén I, Giménez-Esparza Vich C, Romera-Ortega MA, Pardo-Rey C, *et al.*; miembros del GTSAD. Management of analgesia, sedation and delirium in Spanish intensive care units: a national two-part survey. *Med Intensiva (Engl Ed)* 2019;43:225–233.
18. Ceraso DH, Dueñas-Castel C, Raimondi N, Celis E, Carrillo R, Ugarte Ubierno S, *et al.* Latin American survey on delirium in critical patients [in Spanish]. *Med Intensiva* 2010;34:495–505.
19. Bravo M, Bustos S, Acuña E, Cisternas I, Gutierrez P, Vega DPP, *et al.* Epidemiology of delirium in hospitalized patients in Latin America: a systematic review. *Acta Psychiatr Scand* 2023;147:420–429.
20. Reppas-Rindlisbacher C, Panov ED, Cuperfain AB, Rawal S. A survey of nurses' perspectives on delirium screening in older adult medical inpatients with limited English proficiency. *J Gerontol Nurs* 2021;47:29–34.
21. Fernández Víttores D. EL ESPAÑOL: UNA LENGUA VIVA, INFORME 2019 [Internet]. Madrid: Instituto Cervantes; 2019 [accessed 2023 Nov 5]. Available from: [https://www.cervantes.es/imagenes/File/espanol\\_lengua\\_viva\\_2019.pdf](https://www.cervantes.es/imagenes/File/espanol_lengua_viva_2019.pdf).
22. U.S. Census Bureau. Explore census data [accessed 2023 May 17]. Available from: <https://data.census.gov/table?tid=ACSSST5Y2020.S1601&g=160XX00US0666000>.



23. Detroyer E, Dobbels F, Debonnaire D, Irving K, Teodorczuk A, Fick DM, *et al.* The effect of an interactive delirium e-learning tool on healthcare workers' delirium recognition, knowledge and strain in caring for delirious patients: a pilot pre-test/post-test study. *BMC Med Educ* 2016;16:17.
24. Gesin G, Russell BB, Lin AP, Norton HJ, Evans SL, Devlin JW. Impact of a delirium screening tool and multifaceted education on nurses' knowledge of delirium and ability to evaluate it correctly. *Am J Crit Care* 2012;21:e1–e11.
25. Breugelmans R. Dangers in using translated medical questionnaires: the importance of conceptual equivalence across languages and cultures in patient-reported outcome measures. *Chest* 2009;136:1175–1177.
26. Tsang S, Royse CF, Terkawi AS. Guidelines for developing, translating, and validating a questionnaire in perioperative and pain medicine. *Saudi J Anaesth* 2017;11:S80–S89.
27. Wild D, Grove A, Martin M, Eremenco S, McElroy S, Verjee-Lorenz A, *et al.*; ISPOR Task Force for Translation and Cultural Adaptation. Principles of good practice for the translation and cultural adaptation process for patient-reported outcomes (PRO) measures: report of the ISPOR Task Force for Translation and Cultural Adaptation. *Value Health* 2005;8:94–104.