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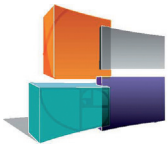

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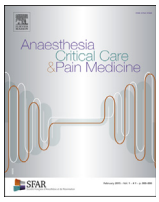

Original Article

The CAM-ICU has now a French "official" version. The translation process of the 2014 updated Complete Training Manual of the Confusion Assessment Method for the Intensive Care Unit in French (CAM-ICU.fr)

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ABSTRACT

Introduction: Delirium is common in Intensive-Care-Unit (ICU) patients but under-recognized by bed-side clinicians when not using validated delirium-screening tools. The Confusion-Assessment-Method for the ICU (CAM-ICU) has demonstrated very good psychometric properties, and has been translated into many different languages though not into French. We undertook this opportunity to describe the translation process.
Material and methods: The translation was performed following recommended guidelines. The updated method published in 2014 including introduction letters, worksheet and flowsheet for bed-side use, the method itself, case-scenarios for training and Frequently-Asked-Questions (32 pages) was translated into French language by a neuropsychological researcher who was not familiar with the original method. Then, the whole method was back-translated by a native English-French bilingual speaker. The new English version was compared to the original one by the Vanderbilt University ICU-delirium-team. Discrepancies were discussed between the two teams before final approval of the French version.
Results: The entire process took one year. Among the 3692 words of the back-translated version of the method itself, 18 discrepancies occurred. Eight (44%) lead to changes in the final version. Details of the translation process are provided.
Conclusions and relevance: The French version of CAM-ICU is now available for French-speaking ICUs. The CAM-ICU is provided with its complete training-manual that was challenging to translate following recommended process. While many such translations have been done for other clinical tools, few have published the details of the process itself. We hope that the availability of such teaching material will now facilitate a large implementation of delirium-screening in French-speaking ICUs.

1. Introduction

Nearly one third of patients admitted to an Intensive-Care-Unit (ICU) will develop delirium [1]. This is associated with an increased duration of mechanical ventilation, length of ICU and hospital stays, an increased risk of dying, in hospital or after discharge, as well as of having long term neurocognitive dysfunction [1,2]. Guidelines recommend the routine use of validated clinical tools for the early recognition and treatment of delirium by medical and nurse ICU teams, even if they are non-expert neuropsychologists [3]. The Confusion Assessment Method for the ICU (CAM-ICU) [4] has been extensively studied for more than 15 years, demonstrating good psychometric properties [3]. It has been the screening tool the most

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often used in practice surveys around the world for several years [5,6]. The CAM-ICU has been translated and validated in many languages. However, the translation into French has never been done formally using the recommended back-translation process. Moreover, there is no recommendation regarding the use of any delirium tool in France [7] nor any data regarding routine use of delirium tools in French ICUs [8,9]. This could be due to nurses and physicians lack of awareness [10,11] or to the absence of an official French translation.

This article provides information regarding the translation process of the 2014 updated method for the use of CAM-ICU, that was performed following recommended guidelines for translation of a medical tool [12], through a research collaboration with original authors at Vanderbilt University. While many such translations have been done for other clinical tools, few have published the details of the process itself.

2. Materials and methods

The translation process was performed following recommended guidelines for translation of a medical tool into another language [12]. The updated method for the use of CAM-ICU published in 2014 (see http://www.icudelirium.org) included introduction letters, worksheet and flowsheet for bed-side use, the method itself, case scenarios for training and Frequently Ask Questions (32 pages) that are presented in a "Complete Training Manual".

This manual was translated from American English into the French language by a neuropsychological trial research engineer who was not familiar with the original method (O.G.). Medical French speaking edits were made by an intensivist (G.C.) in collaboration with the initial translator. The second version of the method was read by two independent French native speaking physicians (A.D.J. and M.C.) to improve the editing. The third version of the method was back-translated from French into English by a native English-French bilingual speaker. Then, the new English version was compared to the original one by the Vanderbilt University icudelirium team. This team has physicians and nurses specialized in delirium assessment, as well as linguists who can compare words and syntax for different English versions of the same text. Discrepancies between the back-translated and the original English versions were discussed between the American and the French teams before approval of the final version.

Fig. 1 shows the timeline of the process. The method itself was first translated and validated before the whole manual in order to make sure that the method had been understood accurately by the translators. The new translated French version has replaced the informal version by Roussel and Massion (2003) that did not follow any recommended translation process. The CAM-ICU.fr is now available at icudelirium.org, as well as in the Electronic Supplementary Material (ESM).

3. Results

The entire process took one year from the first meeting to final approval (Fig. 1). For the method itself that included 3692 words, there were 18 discrepancies between the back-translated and the original English version. Table 1 shows the number and type of discrepancies, as well as final decision regarding changes in the French version. Eight discrepancies (44%) lead to changes in the final version. Six of these discrepancies were considered as important changes. Detailed discrepancies reported by the American team with respective responses by the French team are provided in the ESM. The complete manual was reviewed without any significant discrepancies. The final French version changed the American acronym provided at the end of the manual to support a bundle for the treatment of potential delirium causes. To be consistent with the translation process, the new acronym is a French word. Fig. 2 shows the translation process of this acronym through a collaborative approach between the French and American teams.

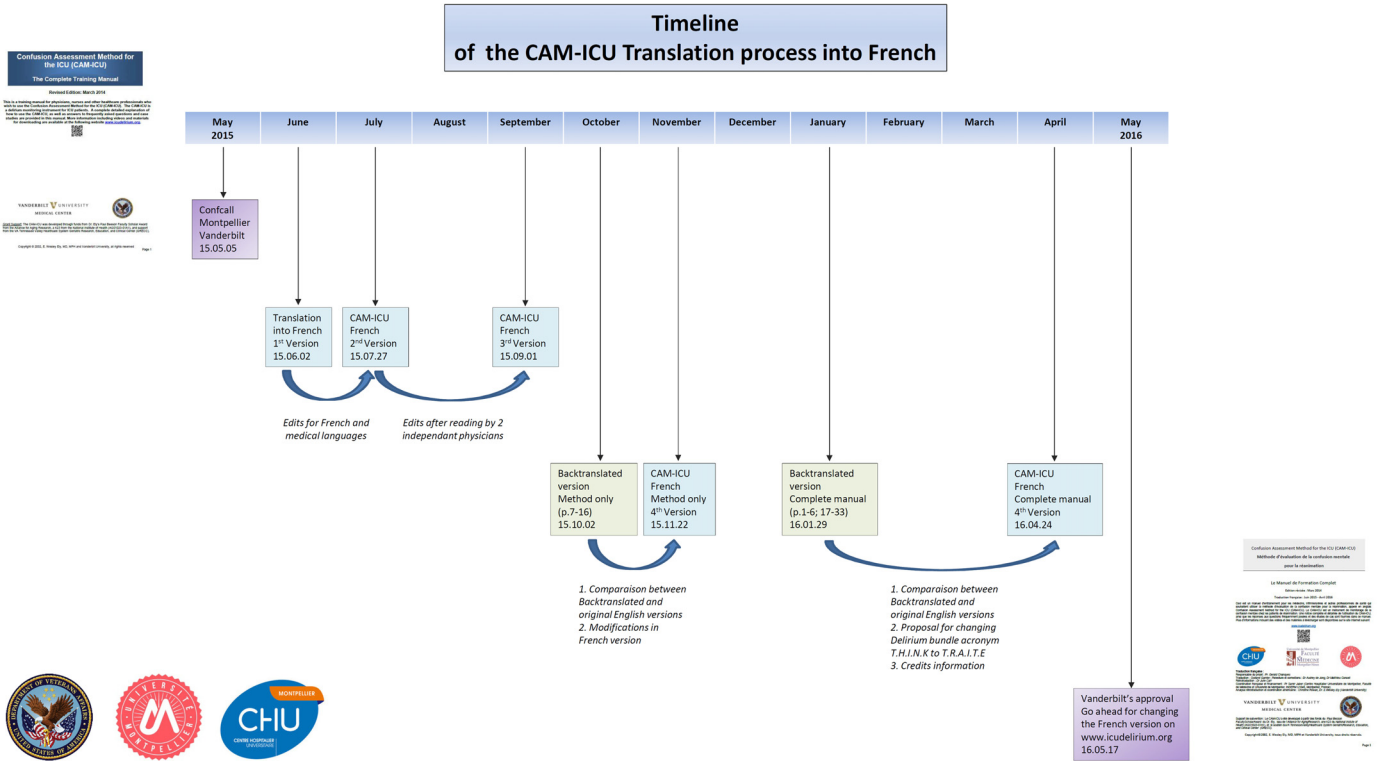
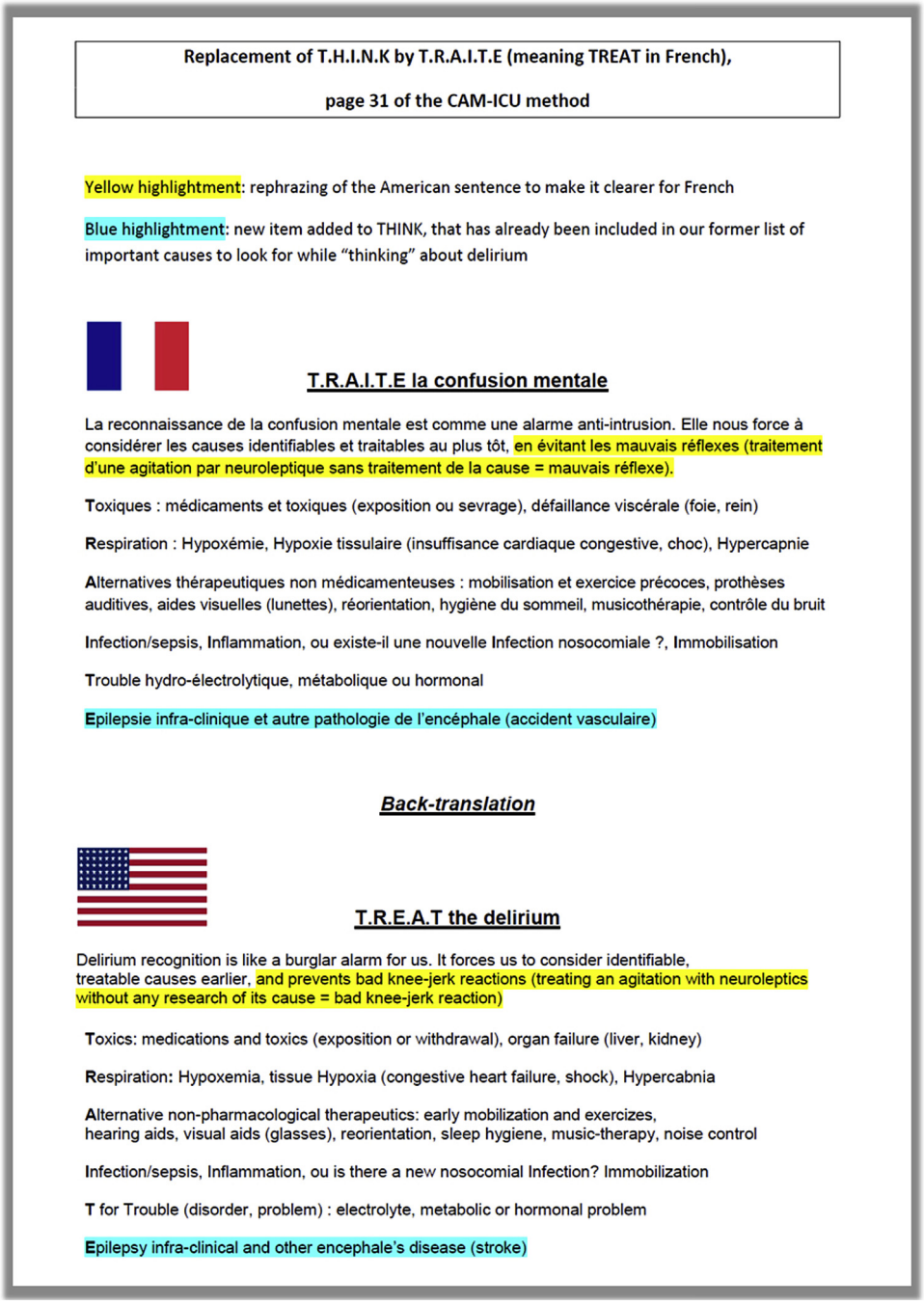


Fig. 1. Timeline of the CAM-ICU Translation process into French.

4. Discussion

Delirium is a frequent event in critically ill patients. It is diagnosed in 10 to 90% of ICU patients depending on the diagnosis tool, the timing of assessment (during light sedation or after interrupting sedation) as well as the frequency of assessment (one point assessment for validation studies or throughout the ICU stay) [3,13]. A recent review of 42 studies found a prevalence of delirium in 5280 of 16,595 (31.8%) critically ill patients [1]. Although frequent, delirium is under-recognized by ICU teams, both by physicians and nurses. Compared to the CAM-ICU, clinicians' sensitivity to diagnose delirium is close to 30% [11,14]. The original study validating the CAM-ICU reported high sensitivity (from 93% to 100%) and specificity (from 98 to 100%) [4]. These very good psychometric properties were reported in a very well trained team. It has been shown that the efficiency of a tool like the CAM-ICU as well as pain and sedation scales are highly dependent on the implementation quality process, including education, training and monitoring of the effective implementation in an ICU team [15–18]. To improve the accurate and regular use of the CAM-ICU on a large scale, the 2014 updated method included a complete manual for training with Frequently Ask Questions (FAQ). It is in this way that the Richmond Agitation Sedation Scale (RASS) had previously been translated and validated in French including a teaching annexe and FAQ [16]. We hope that the translation of the entire manual for the CAM-ICU will allow for a larger implementation of this tool in France as it has been the case for the RASS for several years [8,9]. To provide the most accurate tool possible, we followed the recommendations for



Replacement of T.H.I.N.K by T.R.A.I.T.E (meaning TREAT in French),

page 31 of the CAM-ICU method

Yellow highlightment: rephrazing of the American sentence to make it clearer for French

Blue highlightment: new item added to THINK, that has already been included in our former list of important causes to look for while "thinking" about delirium

T.R.A.I.T.E la confusion mentale

La reconnaissance de la confusion mentale est comme une alarme anti-intrusion. Elle nous force à considérer les causes identifiables et traitables au plus tôt, en évitant les mauvais réflexes (traitement d'une agitation par neuroleptique sans traitement de la cause = mauvais réflexe).

Toxiques : médicaments et toxiques (exposition ou sevrage), défaillance viscérale (foie, rein)

Respiration : Hypoxémie, Hypoxie tissulaire (insuffisance cardiaque congestive, choc), Hypercapnie

Alternatives thérapeutiques non médicamenteuses : mobilisation et exercice précoces, prothèses auditives, aides visuelles (lunettes), réorientation, hygiène du sommeil, musicothérapie, contrôle du bruit

Infection/sepsis, **I**nflammation, ou existe-il une nouvelle **I**nfection nosocomiale ?, **I**mmobilisation

Trouble hydro-électrolytique, métabolique ou hormonal

Epilepsie infra-clinique et autre pathologie de l'encéphale (accident vasculaire)

Back-translation

T.R.E.A.T the delirium

Delirium recognition is like a burglar alarm for us. It forces us to consider identifiable, treatable causes earlier, and prevents bad knee-jerk reactions (treating an agitation with neuroleptics without any research of its cause = bad knee-jerk reaction)

Toxics: medications and toxics (exposition or withdrawal), organ failure (liver, kidney)

Respiration: Hypoxemia, tissue Hypoxia (congestive heart failure, shock), Hypercabnia

Alternative non-pharmacological therapeutics: early mobilization and exercizes, hearing aids, visual aids (glasses), reorientation, sleep hygiene, music-therapy, noise control

Infection/sepsis, **I**nflammation, ou is there a new nosocomial **I**nfection? **I**mmobilization

T for **T**rouble (disorder, problem) : electrolyte, metabolic or hormonal problem

Epilepsy infra-clinical and other encephale's disease (stroke)

Fig. 2. Translation process of the bundle acronym for the treatment of delirium causes through a collaborative approach between the French and the American teams.

Table 1
Discrepancies between the backtranslated and the original English version of the CAM-ICU (Method only).

Number of differences between the backtranslated and the English original versions of the CAM-ICU method ($n = 3692$ words)	Type of difference	Final change in the French version
$n = 7$	Different meaning	
	A: RASS version	A: No change: French version of the RASS already validated
	B: Word for "delirium"	B: No change: "Confusion mentale" is the French word for delirium (according to Mesh terms)
	C: CASABLANCA is preferred instead of SAVEAHAART to tend to a universal language	C: Change made
	D: Four other words	D: 2 No changes: exact word does not exist in French, compromise accepted; 2 Changes made
$n = 6$	Missings	
	2 credits information	2 Changes made
	4 words in the method	3 Changes made, 1 No change: error in backtranslation only
$n = 4$	Typos	No change: errors in backtranslation only
$n = 1$	Question from the French team to rephraze a sentence for clarification	No change: American approval
Summary, $n = 18$		No Change: $n = 10$ (56%) Change made: $n = 8$ (44%)

translating a tool into another language while taking into consideration the impossibility to translate some words literally (see Table 1) as well as transcultural differences in medical and nursing practice between French and Anglo-Saxons [19,20].

5. Conclusions

CAM-ICU.fr, the French version of the 2014 updated CAM-ICU was translated from its American English original following recommended process through a collaborative approach between American and French teams. The entire process took exactly one year. This delay is explained by the challenge of translating the whole Training Manual (32 pages), including presentation of delirium, training scenarios, FAQ, etc.

We hope that the availability of such teaching material will facilitate a large implementation of delirium screening in French-speaking ICUs. Authors will remain available to discuss any points as well as to meet professionals in order to train them to the use of CAM-ICU and management of Pain, Agitation, Delirium, Early mobilization and Sleep in their ICU.

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Disclosure of interest

The authors declare that they have no competing interest.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org10.1016/j.accpm.2017.02.003.

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