Evaluación de competencias clínicas profesionales del servicio hospitalario de urgencias

Evaluation of professionals clinical competencies of the hospital emergency service

Avaliação da competência clínica profissional do departamento de emergência do hospital

Dulce María Galicia Landa
Instituto Mexicano del Seguro Social, México
dulcegali@yahoo.com.mx

Silvia Vázquez Montiel
Benemérita Universidad Autónoma de Puebla, México
Bioquim_silvia@hotmail.com

María del Lurdez Consuelo Martínez Montaño
Benemérita Universidad Autónoma de Puebla, México
lumarmon2@gmail.com.mx

José Gaspar Rodolfo Cortés Riverol
Benemérita Universidad Autónoma de Puebla, México
jgrcr2000@yahoo.com.mx

Salvador Rosales de Gante
Benemérita Universidad Autónoma de Puebla, México
salvadorgaleno@yahoo.com.mx

Minou del Cármen Arévalo Ramírez
Benemérita Universidad Autónoma de Puebla, México
minoudelcarmen@yahoo.com.mx

Resumen

El **objetivo** del presente trabajo es diseñar, validar y aplicar un instrumento para la evaluación de las competencias clínicas profesionales en el soporte básico de vida (SBV) y uso de desfibrilador (DSA), en el equipo de la salud del servicio hospitalario de urgencias.

La **metodología** utilizada consistió en un estudio en un Hospital General de Zona del IMSS en la ciudad de Puebla durante tres fases: la primera fue de búsqueda bibliográfica para la extracción de ítems, la segunda de validación de ítems, método de respuesta y elaboración de criterios para la evaluación mediante el consenso entre expertos, y en la tercera fase se aplicó el test a los participantes para obtener resultados.

Resultados. Se desarrolló el instrumento para la evaluación de competencias clínicas en los servicios de Urgencias, se validó por consenso entre expertos y se aplicó al equipo de salud correspondiente. El test constó de 55 ítems, de los cuales 30 eran para evaluar la dimensión cognitiva, 20 para evaluar la dimensión procedimental y 5 para evaluar la dimensión actitudinal. Con ellos se evaluaron las competencias clínicas.

Palabras clave: competencias clínicas, instrumento, soporte básico de vida.

Abstract

The **objective** of the present work is design, validate and apply an instrument for the evaluation of the professionals clinical competencies in the Basic Life Support (BLS) and use of Semi Automatic External Defibrillator (Semi Automatic AED), in the health care team of the hospital emergency department.

The **methodology** used consisted of a study in a General Hospital of Zone (HGZ by its name in Spanish) of the IMSS in the city of Puebla during three phases: the first was from search literature for the items extraction, the second of items validation, method of response and development of criteria for the evaluation by experts consensus, and in the third phase applied the test to participants to get results.

Results. Is developed the instrument for the assessment of clinical competencies in emergency services, is validated by experts consensus and is applied to the corresponding health equipment. He test consisted of 55 items, of which 30 were to evaluate the dimension cognitive, 20 for evaluate the dimension procedural and 5 for evaluate the attitudinal dimension. With them were evaluated the clinical competencies.

Key words: clinical competencies, instrument, Basic Life Support (BLS).

Resumo

O **objetivo** deste trabalho é projetar, validar e aplicar um instrumento para a avaliação das competências clínicas profissional em suporte básico de vida (SBV) e uso do desfibrilador (DSA) em equipamentos de serviço de urgência do hospital.

A **metodologia** utilizada foi um estudo em uma zona General Hospital IMSS na cidade de Puebla por três fases: a primeira foi pesquisa bibliográfica para a remoção de itens, segundo a validação de itens, o método de resposta e critérios de desenvolvimento para avaliação por consenso dos especialistas, e, na terceira fase foi aplicado o teste de participantes para obter resultados.

Resultados. o instrumento para avaliar habilidades clínicas em serviços de emergência foi desenvolvido, validado por consenso entre os especialistas e aplicada à equipe de saúde correspondente. O teste consistiu de 55 itens, dos quais 30 eram para avaliar a dimensão cognitiva, 20 para avaliar a dimensão processual e 5 para avaliar a dimensão atitudinal. Com eles foram avaliados competências clínicas.

Palavras-chave: habilidades clínicas, instrumento, suporte básico de vida.

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Introduction

The education understood as a dynamic process that facilitates the individual and collective developing of a society, it requires a system that allows measuring the result of this transformation. In the current education and throughout our lives we are subject to the assessment.

There are different paradigms that guide approaches, concepts, trends or models of conceiving the learning evaluation (Oscar Gutiérrez, 2004); also the the evaluation has been defined as "a critical reflection on all the moments and factors that are involved in the teaching and learning process in order to determine what can be, are being, or have been its results" (Carlos Rosales, 1999).

However, professionals involved in the clinical area are asking what are the competitions that should acquire our graduates since the University or, even better, if the effective linkage is the best way of measure what was "learned" in relation to what is put into practice, as well as how to prove it. Both elements are closely United, because without a understanding clear of the concept of competencies is not possible to make a proper assessment of their achievement. Del mismo modo, de nada sirve orientar el aprendizaje hacia la adquisición y dominio de la competencia if there are not appropriate instruments of evaluation that help the teacher to analyze and rate the results obtained by the student (From Hand Gonzalez Marta, 2009) .

Staff training, maintenance of their competition and the search for new solutions are an essential part of the philosophy that should guide a modern hospital, for which strategic planning is used as tools for education and research (Alberto Lisfhitz, 2004).

UNE 66173 (2003, p. 4) defines competition as the set of "personal attributes and demonstrated ability to apply knowledge and skills". It is pointed out expressly that is synonymous with the "ability to solve problems in a given context."

If we understand the powers as a complex process that involves the development of different skills, performance, attitudes and emotions, it is expected that not being assessable alone has to infer through observation of such performance or specific actions. So, you

check them in practice is required by fulfilling certain clearly defined criteria. A competency assessment requires the design of specific instruments for the student to demonstrate with evidence (executions) that can perform tasks or procedures for effective and efficient when considering cognitive, procedural and attitudinal domain, in addition to the formation of values way.

The circumstances of modern medicine demand a more complex approach where the links between school subjects and between these and real life are evidenced as in the emergency department, where knowledge and skills as well as how to proceed in each seriously ill patient are essential in each and every one of the health professionals in charge. This is the case of basic life support, whose action is intended not only to preserve the life of a patient but also to do so in excellent clinical conditions that will maintain the quality of life through certain maneuvers to ensure proper oxygen supply to the brain, heart and other vital organs.

The instrument is intended not only to present the skills acquired in basic life support to those who have already made some kind of resuscitation courses, but also those who have never done. Similarly it seeks to determine the scope of an innovative educational strategy whose skills development in SBV is effective in the shortest possible time.

Clinical competence is defined as the set of knowledge, skills, qualities and skills that allow the doctor to perform the functions and tasks necessary to solve with efficiency and quality problems of individual and collective health demanded by society.

Clinical competence requires domain-specific knowledge own health area; communication skills and organization; skills and teamwork skills to solve problems and reasoning skills based on evidence found. Also encompasses values such as dedication to service, social sensitivity and responsibility.

Since clinical competence is a learning process and not merely summative, there is some complexity for evaluation.

In recent years these clinical skills have been more boom scenarios critical services, such as: emergency, shock, intensive care, and so on. In these scenarios the evaluation process not only becomes part of the feedback but a mechanism for professional performance

improvement; however, the traditional way to assess these skills are grounded in clinical reasoning, determining the conceptual domain and argumentative capacity, leaving aside the procedural dimension.

In Mexico the current competency assessment models have been designed in accordance with the competencies required in each area of health.

Methodology

an initial systematic review and subsequently an observational, comparative, transversal, prospective study with health team emergency department, consisting of the assigned nurses, medical residents in specialties emergency, medicine child and adult developed and attached to family medicine and emergency medical service.

The study was conducted in three phases: during the first phase the literature search for the extraction of items developed in the second phase of evaluation proceeded to the selection of items for the formation of the instrument and the development of criteria for evaluation by the consensus among experts, in the third phase the instrument was applied to obtain a cognitive assessment, procedural and attitudinal of the study population.

The literature search was conducted in the main biomedical databases with the descriptors: "Resuscitation AND EVALUATION AND TEACH OR education". The search was subject to the period between 2005 and 2014 and search languages were Spanish and English period.

In the second phase it was formed and validated instrument.

During the third phase for cognitive assessment a case within various scenarios raised at hospital. The case began with the background that led to a patient to a cardiac arrest, the student should take the decision whether or not resuscitation and from that performed on the mannequin steps option, taking each subsequent immediate decision according to changes clinical dictated by the teacher, who is assumed as a result of the previous intervention, the process culminating with the final actions in accordance with the result of resuscitation or the decision not to start one.

The performance rating was individual. Two measurements were made questionnaire. The (global) weighted rating was obtained by adding both the test, while the performance evaluation was obtained by dividing the result by three. The cutoff for accreditation was set at 70 points of the weighted score.

Comparisons between groups were made inter and with the Kruskal-Wallis and Mann-Whitney U, respectively. P less than 0.05 was considered significant.

Results

The study was conducted in the health team of the emergency services, consisting of the attached nursing and medical residents in specialties emergency, medicine child and adult, and family medicine staff.

From this search a total of 315 articles were obtained. The selection criteria for the retrieval of full text articles was that utilize an instrument, quiz or test to evaluate the practical realization of Cardio Pulmonary Resuscitation (CPR), basic and advanced, including the management of semi-automatic defibrillator.

Finally the full texts of 30 articles were selected. In each analysis of articles in order to extract items used by other studies, response systems employees and the evaluation criteria on which they were based for the assessment of practical skills in BLS and use of defibrillator we were performed Semiautomatic.

The test consisted of 55 items in total, which were 30 to evaluate the cognitive dimension, 20 to evaluate the process dimension and 5 to assess the attitudinal dimension.

The instrument is as follows:

Clinical cases for cognitive dimension:

1. Case. By going down the street, you find yourself with an unconscious patient of about 45 years, with no pulse or vital signs. The first step to do would be:

a) Ask the time of collapse
b) Yelling for help
c) To assess the state of consciousness

d) Check the initial breathing
e) None of the above

2.- You confirm that the patient is not breathing and has no pulse, the next action to follow is:

a) Turn the basic chain of life
b) Place electrodes
c) Start the basic sequence of CPR
d) Request and identification defibrillator heart rhythm.
e) All of the above

3.- The proper sequence for CPR chest compressions according to the latest 2010 AHA guidelines, is:

a) Minimum depth of 5 cm
b) Allow full chest expansion after each compression.
c) At least 100 compressions per minute
d) All of the above.
e) None of the above

4.- Mention the characteristics of early defibrillation:

a) decreases mortality in the first few minutes
b) it must be accompanied immediately by a cycle of CPR.
c) it is used whenever the patient has no pulse.
d) Allows chest expansion to be performed.
e) All of the above

5.- A potentially shockable rhythm is:

a) ventricular tachycardia
b) supra ventricular tachycardia narrow complex
c) mono- morphic ventricular tachycardia
d) isoelectric Stroke
e) ventricular fibrillation and pulseless ventricular tachycardia.

Case report No.2.

6. You are in the emergency room and then enters the service of resuscitation a man of 57 years with a history of unstable angina, chest pain intensity referring 9/10. During the initial examination, the patient agonal breathing and loss of alertness, so the next action to follow is:

a) Place shovels to monitor pace
b) Verify maximum pulse for 10 seconds
c) Check state of consciousness
d) Request vital signs the nursing team
e) All of the above.

7.- By placing the defibrillator paddles you find the following rhythm. After analyzing the rhythm you identify:

a) Sinus Tachycardia
b) Atrial Fibrillation
c) pulseless ventricular tachycardia
d) ventricular fibrillation
e) tip torsade

8.- The next action to be performed is:

a) resuscitation cardiac massage
b) Protection of the airway
c) Electrical cardioversion
d) Defibrillation
e) All of the above

9.- After verifying that the patient has no pulse, the stroke of the monitor is as follows:

a) Check monitor cables
b) Blow chest and airway protection
c) Carotid Massage
d) cardiac compressions before 28 to 25 seconds

e) All of the above

10.- The basic sequence is to continue resuscitation:

a) Start chest compressions, defibrillation, monitoring
b) Check pulse, cardiac compressions, early defibrillation
c) Check pulse, activate the chain of life, effective chest compressions, early defibrillation.
d) All are correct
e) None of the above.

Anexo 2. Checklist for post procedural area. Video

Ítem	Sí realiza	Realiza incompleto	No realiza	Total
Pregunta hora del colapso	3 puntos	1 punto	0 puntos	60 puntos máximo
Revisa la seguridad del lugar	3	1 punto	0	
Valoración conciencia (gritar y sacudir)	3	1	0	
OVA (comprobación inicial circulación)	3	1	0	
Localiza pulso carotideo	3	1	0	
Inicia masaje cardiaco a velocidad mayor de 100 compresiones por minuto.	3	1	0	
Sabe la colocación Exacta de electrodos	3	1	0	
Sabe encender el desfibrilador	3	1	0	
Reconoce adecuadamente el ritmo	3	1	0	
Interferencia en el análisis	3	1	0	
Determina si requiere de desfibrilación	3	1	0	
Realiza advertencia “no tocar “ al	3	1	0	
Iniciar reanimación				
Aplica descarga a joules determinados	3	1	0	
Comprueba el ritmo y el pulso posterior al realizar una descarga, x 10 segundos	3	1	0	
Inicia compresiones cardiacas sin interrupciones con secuencia 30x2x5	3	1	0	
Realiza compresiones con profundidad mínima de 5 cm	3	1	0	
Permite que el tórax regrese a su normalidad durante cada compresión	3	1	0	
Reduce al mínimo las interrupciones durante las compresiones	3	1	0	
Evita la ventilación excesiva	3	1	0	
TOTAL	60 PUNTOS	20 PUNTOS	0 PUNTOS	Escala de valoración 0-20 Incompetente

				20-50 Deficiente 50-60 Competente

HEADING FOR DIMENSION procedural and attitudinal

NOMBRE DEL ALUMNO	FECHA Y LUGAR	LUGAR	ACTIVIDAD EVALUADA	DESCRIPCIÓN DE LO OBSERVADO	GLOBAL	INTERPRETACIÓN DE LO OBSERVADO
01	27 OCTUBRE	HGZ 20 IMSS	RECONOCE SITUACIONES DE EMERGENCIA Y ACTIVA CADENA DE LA VIDA 10 %	Activa la cadena de supervivencia 10 %	85—100 %	Óptimo o Competente.
			RECONOCE RITMOS DESFIBRILABLES Y NO DESFIBRILABLES 30 %	RECONOCE RITMO NO DECIDE DESFIBRILACIÓN OPORTUNA 0 %	70-85 %	Suficiente
			REALIZA COMPRESIONES CARDIACAS EN TIEMPO Y FORMA PREVIA INFORMACIÓN AL FAMILIAR 20 %	Inicia maniobras de reanimación en tiempo adecuado. No permite expansión de tórax 10 %.	Más de 50-75 %	Deficiente.
			RECONOCE DESFIBRILADOR EXTERNO AUTOMÁTICO Y PUEDE INSTALARLO ADECUADAMENTE EN UN PACIENTE Y UTILIZARLO 20 %	Desconoce el funcionamiento del desfibrilador 0 %		
			TRABAJA EN EQUIPO, RESPETA A SUS COMPAÑEROS, ACEPTA SUGERENCIAS, SE COMUNICA	Trabaja en equipo, solicita ayuda, informa al familiar estado de salud 20 %	Menos del 50 %	Incompetente

			ÉTICAMENTE CON FAMILIARES DEL PACIENTE. 20 %			
TOTAL			100 % (óptimo)			

The instrument was applied to 51 people, of whom 28 were residents of family medicine (FM), 4 residents in the specialty of emergency, 2 medicine residents child and adult (N and A), 4 physicians department` and 13 rotating emergency nurses in the emergency department at the time of the application.

Doctors and nurses to whom the instrument was applied had the characteristics presented in Tables I, II and III in gender, specialty, age, grade and previous training.

Table I. Study Population by gender and specialty

Género	Médicos adscritos	Residentes de (M F)	Residentes del (N y A)	Residentes Urgencias	Enfermeros	Total
Hombres	2	13	1	3	3	22
Mujeres	2	15	1	1	10	29

The group was made up the largest number of family medicine residents and the residents were fewer medical child and adult.

Table II. Study Population by age

Edad	Médicos adscritos	Residentes MF	Residentes N y A	Residentes urgencias	Enfermeros	Total
20-30	0	9	0	0	5	14
30-40	2	19	2	3	7	33
40-50	1	0	0	1	1	3
Más de 50	1	0	0	0	0	1

In relation to the age of the study population, the largest number of people was found in the range of 30 to 40 years.

To make the application of the instrument, which would allow assessment of clinical skills in basic life support (BLS) and defibrillator use, the study population was stratified to form three groups with the following characteristics:

Group 1 was formed by four emergency physicians in the group Feb. 34 residents, of which 28 were family medicine, 3 emergency, 2 medical child and adult, and group 3 was formed by 13 met nurses.

In the initial review any group achieved average passing score (Table III); only a physician group 1 received a passing grade (76), all other students were below 70. The nursing group was the one who was lowest with an average of 24 points out of 100. a video for the evaluation was made performance, which was later used as part of the educational strategy for improving clinical skills SBV and DSA. Neither group had significant difference between them ($p < 0.001$).

In performance analysis there was significant difference between group 1 and 3 ($p < 0.001$); SAW). The overall rating of the three groups was not passing, with statistical difference in groups 1 and 3 with all the other ($p < 0.001$).

A resident group 2 (family medicine resident) had the lowest score. In the same group of residents, 3 residents of the third year of the specialty obtained more than the rest of the group (57 of 100 points) score.

The most frequently omitted average needed was "two rescue breaths", 45 students (88.23%) performed unnecessary when identified or thought they identify a lethal arrhythmia measures.

Table III is presented by the difference between the final group average test scores CPR and Table IV comparing the final scores of the groups is presented.

Table III. Grade earned by performance

GRUPO	Evaluación cognitiva	Desempeño en S. B. V.	Desempeño en manejo del desfibrilador
1	76	82	61
2	54	47	39
3	35	31	17

Table IV.Aaverage comparison between groups of the final exam score

	GRUPO 1	GRUPO 2	GRUPO 3
CALIFICACIÓN FINAL	73.0	46.6	27.6

Discussion

Among the results it was difficult to determine the procedural area on the scale of competency assessment, which was a video with rating scale for procedural dimension

In the study some complexity when using the check list was found, it does not allow the student rate while performing the test SVB, forcing videotaping the examination for further evaluation.

The shaped items were different forms of assessment: some followed Likert scales type 2 to 5 points and other items rated numerically (eg number of effective compressions performed, or average volume of injected air). Of the 55 items that make up the study, 35 were adaptations of ACLS since it is an instrument internationally certified, so in this study were taken as a guideline needs assessment adapting items to convenience according to the dimension to be evaluated , without preserving the original statement or the order placement.

Conclusions

It was designed, validated and applied an instrument for the assessment of professional skills in basic life support equipment health emergency department. With it the need for instruments for assessing professional clinical skills that allow them greater significance and relevance was demonstrated.

The forms of assessment of clinical skills in basic CPR and defibrillator use are imperative to improve the development not only of clinical aptitude in the strict sense of the concept spilled by Viniegra and employees, but also for decision making to problematic situations evaluated as part of the performance as well as to recognize severity and prognosis factors, and selecting appropriate and individualized in severe cardiac arrest patient therapeutic actions. Therefore, and based on the results of the implementation of competency assessment programs adapted to the context of the reality in the emergency services it is considered necessary. Such programs should allow implementation of new learning strategies from the constructivist approach to the development of clinical and professional skills in basic life support and use of the defibrillator.

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