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IMPLEMENTATION OF A NURSING COMPETENCY ASSESSMENT SYSTEM IN PUBLIC HOSPITALS

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ABSTRACT

Numerous problems are frequently observed when nursing competency assessment systems (NCAS) are implemented. How to effectively implement a nursing competency assessment system, according to academic and practical contributions, is poorly reported in the literature. The purpose of this paper is to present a set of recommendations for public hospitals and nursing management in order to facilitate the implementation of a NCAS. To achieve this objective we have revised the existing literature and conducted a Delphi study with nursing managers and human resource managers of the public hospitals of the Basque Health Service. The results are that the implementation of a NCAS requires a well-planned strategy that managers must consider before implementing any NCAS. This strategy must include, at minimum, the following aspects: communication, training, leadership, and content where the NCAS is concerned. The context of the organisations and the cultural dimensions may also influence the results of the application of the system.

RESUMEN

La implantación de sistemas de valoración de competencias (SVCE) para enfermeras es una práctica de gestión complicada que conlleva numerosos problemas en su puesta en práctica. Por otra parte, está poco analizada y recogida en la literatura académica. Por consiguiente, el objetivo de este artículo es presentar un conjunto de recomendaciones para la dirección de hospitales y de enfermería de los hospitales públicos que facilite la implantación de SVCEs. A tal fin hemos revisado la literatura y hemos conducido un estudio Delphi con directores de enfermería y de hospital del Servicio Vasco de Salud (Osakidetza). Como resultado se observa que la implantación de un SVCE requiere una planificación cuidadosa previa por parte de la dirección, que debe incluir al menos los aspectos de comunicación, formación, liderazgo y contenidos

del SVCE. El contexto de la organización y la dimensión cultural pueden condicionar también el éxito de la puesta en marcha del SVCE.

Key words: Nursing assessment, Delphi Technique, Focus Groups, Competency assessment, Public Hospitals, Qualitative methods, Human Resource Management.

JEL code: M54 Labor Management.

1. INTRODUCCIÓN

Nursing competency assessment systems (NCASs) constitute a set of resources and processes required to assess the competencies of nurses. It includes an assessment tool (Wilkinson, 2013), assessment method, the assessors, work plans, philosophy, and assessment principles and objectives. It is a key basic process that has a vital impact on the organisation's function, since it can contribute to the comprehensive development of its personnel, and maximise the organizations knowledge and abilities at an individual and collective level. The main objective is to satisfy the changing needs of both its external and internal clients. For these reasons, the NCAS is a key basic process that clearly impacts an organisation's results, and the satisfaction/dissatisfaction of the nursing collective.

Consequently, the design phase for the implementation of any action model with people from a hospital organisation and, in our case with nurses is critical for achieving success in the process that is initiated with the design of the evaluation system and is terminated with its effective application, and must therefore be planned previously by management (Dellefield, 2007; Speers, 2008).

This study sought to develop a set of recommendations relating to different organisational strategies, with the aim of minimising, insofar as possible, the resistance produced by the implementation of any NCAS.

To this end, in this article we review the literature published on resistance and solutions vis-à-vis the implementation of NCASs. We applied one Hybrid Delphi in order to rank the solutions and match the system to a concrete context, this being the hospital system in the Autonomous Community of the Basque Country in Spain. Also, we evaluated the methodology applied and present the conclusions of our work.

2. BACKGROUND

The implementation of any worker assessment system produces a series of resistances, both among those being evaluated and middle managers (Horton, 2000; Steaban et al., 2003). In the case of nurses, misgivings are aroused as to the use that management may make of the information obtained. Meanwhile, middle managers constitute one of the main sources of resistance because of the direct work load they will have to assume (Horton, 2000; Steaban et al., 2003), which may furthermore bring about interpersonal conflicts. In this regard, some authors propose that one of the strategies that must be undertaken so that middle managers do not feel "abandoned" in this process is to provide them with ample training and equip them with the necessary skills for both making an assessment and employing a concrete assessment model

(Farnham and Stevens, 2000; O´Hara et al., 2003; Capaldo et al., 2007; Dellefield, 2007; Speers, 2008; Byars and Rue, 2010).

Management support and leadership (O´Hara et al., 2003; NHS, 2005; Dellefield, 2007; Cusack and Smith, 2010; Hennerby and Joyce, 2011), from both general and human resource (HR) management, is another indispensable critical factor in such projects since they involve the entire organisation. It is essential to provide the resources needed to make the assessment system function. Projects of this kind carry a high cost in terms of effort and money, responsibility for which management must assume. The investment required by these systems is high (Griesser et al., 2012) and leaders must therefore make a prior analysis to determine whether the organisational and economic conditions are suitable for putting a competency-based assessment system in place.

Another important aspect is the alignment of the project's objective with the rest of the organisation's aims (O´Hara et al., 2003) as would be done with any other project that the whole organisation is involved in. However, it will be necessary for this to occur not just with the organisation's strategy, but with all other HR subsystems such as training, promotion, and pay (Barney and Wright, 1998), which frequently involves redesigning these structures (Harel and Tzafrir, 1999; Meretoja et al., 2004; Capaldo et al., 2007, Buller and McEvoy, 2012; Jasper and Crossan, 2012).

Finally, the process of communicating the project is also essential in competency management projects (O´Hara et al., 2003; Dellefield, 2007; Capaldo et al., 2007; Hennerby and Joyce, 2011). The communication strategy must be channelled toward a clear definition of the usefulness and employment of the evaluation results, determining what the consequences of the assessment are so that there is commitment and responsibility in this regard from the workers.

3. DESIGN

Methodology

In order to put the necessary elements in place to successfully implement this process in public hospitals within a particular geographical and social environment, we employed the Hybrid Delphi (Landeta, 2011), which is a combination, structured within a specific order, of three widely known techniques: focus groups (Merton et al.,1990; Krueger, 1991), the nominal group technique or NGT (Delbecq and Van de Ven, 1971; Delbecq et al., 1975), and the Delphi method (Dalkey and Helmer, 1963; Linstone and Turoff, 1975; Landeta, 2006). This combination of techniques seeks to keep the advantages that each technique possesses, reducing their limitations, and is especially applicable to collectives of professionals who voluntarily participate is a study of this nature. It takes place in two stages: one face-to-face (focus group and NGT), the other a distance stage (Delphi). Other studies on nursing competencies have also been carried out using combinations of these techniques (Gibson et al., 2003).

Participants

A sample of HR management experts from the public hospital system of the Basque Health Service (BHS) in an Autonomous Community of the Basque Country, Spain, took part in the study.

First, 6 managers took part in a face-to-face session that included 3 HR managers, 2 nursing managers, and 1 nursing supervisor from different BHS hospitals. The researchers acted as coordinators.

Finally, a Delphi questionnaire was sent to a sample of 21 managers interested in the study (including the experts who participated in the focus group) made up of 10 nursing managers, 1 nursing supervisor, and 10 HR managers. The age of the managers ranged from 44 to 52 years, and their average experience in the organisation was over 20 years. A total of 15 experts answered the questionnaire, constituting 37.5% of the total population of managers from the 20 hospital centres of the BHS.

Data Collection

In the face-to-face session, the research project objectives were first presented, leading to a discussion among the participants about the problems and difficulties with implementation of a competency assessment model. A focus group approach was taken to focus the experts on the problem. In order to obtain an initial list of initiatives or recommendations for the implementation of an NCAS in public hospitals, the 6 participants were given a questionnaire during the same session in which they had to reply individually and in writing to open questions concerning what aspects should be taken into account with regard to:

- the content, form, regularity, and target audience of the communication strategy;
- aspects to be considered concerning the content, type, and target audience of the training strategy;
- aspects they deemed to be of vital importance for the monitoring and support of the strategy;
- all the items they felt to be of importance that had not been included in their answers to the three previous questions.

Afterwards, following NGT methodology, each participant set out in turn an item or aspect. This process was followed successively until all the items or factors written by the experts had been explained. All the contributions were collected (30 items).

The questionnaire to be employed in the Delphi method was developed from the information gathered in the NGT (30 items) and from a literature review (17 items). The questionnaire consisted of 47 items and was divided into four differentiated sections:

- Communication strategy (14 items).
- Training strategy (13 items).
- Strategy for commencement and monitoring of the implementation (10 items).
- General evaluation characteristics (10 items).

The experts had to assess the importance of each item. At the end of each section, the participants were offered an opportunity to include other initiatives they deemed important, but that did not appear in the questionnaire. Two rounds of consultation were held with the experts. After the first round of completed questionnaires were received and processed, a statistical summary of the responses was sent back to the 15 experts, providing information on the panel's group opinion. The information included the value of the median and lower and upper quartile for each

questionnaire item, along with the assessment that each of them had made in the first round. They were asked for a new assessment with the option of maintaining their opinion or, conversely, of modifying it. When their assessments did not fall between the 1 and 3 quartile interval of the global first round assessment, they were asked to provide justification.

In addition, the experts' opinion regarding the methodology employed in the research was also sought in this second round. For this, 6 additional items were included. The experts had a very positive opinion of every single phase employed, expressing their confidence in the methodology pursued during the whole process and the importance of the strategies included to achieve effective implementation of a NCAS (Table 1 shows the experts' assessments of these items).

Table 1. Assessment of the methodology by the people participating in the study

Stages of the Hybrid Delphi methodology		Me (0-10)	$\overline{x}$ (0-10)	M (0-10)	SD
1	The researcher presents the objectives, characteristics and factors that comprise the assessment model to be implemented to a group of HR and nursing managers at a meeting that took place at the BHS headquarters as a step preceding the collection of proposals aimed at efficiently implementing the model.	9.00	8.83	10.00	1.19
2	Open round of interventions from the experts present with comments, points of doubt, and reflections on the implementation of an assessment model as a step preceding the collection of proposals.	9.00	8.83	10.00	1.03
3	Individual listing, in writing, and subsequent pooling in order of the proposals for strategies of communication, training, monitoring, and commencement of the implementation and general characteristics of the assessment that they considered necessary for the effective implementation of the model.	9.00	8.83	10.00	1.03
4	Assessment of the proposals collected in the face-to-face session and of others collected from the literature, anonymously, and by email with the option of contributing the new proposals from those experts participating in this stage who were not present in the previous stages (First Delphi round).	9.00	8.69	9.00	0.85
5	New round of assessments to evaluate the proposals gathered in the first questionnaire, along with others contributed by other experts in the first round, where the majority opinions become known (Second Delphi round)	9.00	8.54	9.00	0.97
6	Mark from 0 to 10 the degree of confidence you have that through this process or the methodology pursued the most important strategies for the effective implementation of a nursing care competency assessment have been captured and evaluated (0 no confidence -10 total confidence).	8.00	8.38	8.00	0.96

Me = median value; $\overline{x}$ = average value; M = mode; SD = standard deviation

Data analysis

The indicators of the central tendency of the experts' evaluations (*median and average*) were calculated, as well as the results relating to the dispersion/consensus of responses for each of the two rounds performed. The proposals were ordered in accordance with the *median* and, where the *median* was the same, their *averages*.

Where the dispersion of the experts' responses is concerned, the response distribution during the second round of the Delphi method should ideally display less dispersion because the degree of consensus increases.

The absolute indicators that were employed to measure the degree of consensus were the *interquartile range* (IQR) and the *standard deviation* (SD). A reduction in both values after the second round indicates that the degree of consensus is greater and that there is a closer final group response. Two additional values were calculated for this. The first was the *variation between the standard deviations* in both rounds, and the second was the *variation in the IQR*:

Variation between standard deviations: $SDV = SD_1 - SD_2$

Variation of the interquartile range: $IQRV = IQR_1 - IQR_2$

SD_1: standard deviation in the first round; SD_2: standard deviation in the second round; IQR_1: interquartile range in the first round; IQR_2: interquartile range in the second round.

4. RESULTS

The main suggestions for action in the implementation of an NCAS were as follows:

1- In relation to *communication strategy:*

- ✓ It is essential that its content clearly and unequivocally reflects the NCAS objectives and the effects it will have on all the other HR policies in the organisation.

- ✓ With regard to the target audience that this strategy should be directed towards, middle managers should consider taking on a new role that they have not performed previously. Therefore, the communication strategy must be more intense in relation to this group. The union representatives also have a great influence on the management of public hospitals; consequently, the communication strategy must facilitate an important degree of acceptance and consensus with these collectives.
- ✓ Where the content of the message is concerned, it is important that the messages be clear and consistent for everyone (assessors and workforce), and be delivered in a sufficiently timely manner so as to avoid any improvisation that might alter the content and initial objective of the communication strategy. In particular, it will be necessary to emphasise the strengths of the model in order to prevent, insofar as possible, the rejection that might initially be expected to occur.
- ✓ It is preferable to use face-to-face means of communication since it is more direct, and it is best for such encounters to be infrequent. The employment of other complementary means is also advisable such as informative pamphlets and the organisation's intranet.

Table 2 shows the responses to the first question: aspects to be taken into account with regard to *communication strategy.*

Table 2. Essential Factors in the Communication Strategy Design

Itemised actions to be taken		Assessment (0-10)		Final consensus		Consensus variation	
		Me	$\bar{x}$	SD	IQR	SDV	IQRV
1	Communicate the purpose and objectives of the assessment, clearly indicating the influence that this evaluation will have on the rest of management's HR policies: promotion, professional development, pay, recognition….	10.00	9.71	0.47	0.75	0.45	0.25
2	Before initiating the process, suitably prepare all the members of the BHS who are going to share some responsibility in communicating the project to the remaining members of the organisation.	10.00	9.71	0.47	0.75	0.44	0.25
3	Give priority attention to the assessors, as they are the most important target audience for the communication strategy.	9.00	8.86	0.86	2.00	0.59	0.00
4	Communicate relevant aspects of NCAS implementation to the whole organisation: middle managers, nurses, and union representatives.	9.00	8.71	0.61	1.00	0.44	0.00
5	Make a single communication strategy for all hospitals, sending out clear consistent messages.	8.00	8.57	0.85	1.00	0.27	0.75
6	Use the direct channel (oral: meetings, seminars, open sessions) as the main means of communication aimed at small groups in order to achieve more direct personal communication.	8.00	8.32	0.67	1.00	0.65	0.50
7	Communicate in a timely manner the basic characteristics of the NCAS assessment (aspects and skills that it will evaluate…) and the implementation strategy.	8.00	8.29	0.99	1.00	0.45	1.75
8	Utilise various communication channels: intranet, meetings, pamphlets, and personal letters among others.	8.00	8.00	0.88	2.00	1.24	1.25
9	In any communications made, highlight the strengths of the NCAS (reliability, validity, simplicity, objectivity…).	8.00	7.93	0.83	2.00	0.47	0.00
10	Communicate in a timely manner all the relevant aspects of the project to union representatives, highlighting the positive features of the assessment model to avoid rejection of the NCAS, insofar as is possible.	8.00	7.89	0.88	2.00	0.62	0.25
11	Communicate relevant aspects of NCAS implementation to nurses in a personalised way via a personal letter to the professional's home address, for instance.	8.00	7.71	0.61	1.00	0.56	0.00
12	Disseminate the model and its relevant aspects via the BHS intranet.	7.50	7.57	1.16	2.00	0.48	1.00
13	Devise and distribute a brief pamphlet highlighting ("selling") the model's advantages and strengths.	7.00	6.93	0.73	0.00	1.00	2.00
14	Disseminate the project through the public communications media (daily press), highlighting its strong points and innovative nature.	6.00	6.32	0.77	1.00	0.61	0.50

Me = median value; $\bar{x}$ = average value; SD = standard deviation; IQR = interquartile range; SDV = variation of the standard deviation; IQRV = variation of the interquartile range

2- In relation to *training strategy*:

- ✓ A very notable aspect is the importance attributed to training strategy evaluation in terms of implementing future improvements in this area. Once again, the assessors' inexperience in using competency assessment systems seemed to reflect the deep concern they felt about the effectiveness and usefulness of the training received.
- ✓ Regarding the type of programmes to be used, this is a new activity for the assessors with its accompanying difficulties and responsibilities. Therefore, face-to-face training scored high, and complementary on-line training was valued as a form of support.
- ✓ Permanent assessor support during the whole process is also a feature that was highly appreciated. Assigning tutors at a personal level might contribute to resolving any issues that may arise during the assessment.
- ✓ Training strategies consume a great deal of resources. As a consequence, those running the project must set aside sufficient resources to ensure the effectiveness of the training strategy.

Table 3 shows the results of the second question: aspects to be taken into account with regard to *training strategy*.

Table 3. Essential Factors in the Training Strategy Design

Itemised actions to be taken		**Assessment (0-10)**		**Final consensus**		**Consensus variation**	
		Me	$\bar{x}$	SD	IQR	SDV	IQRV
1	When the competency evaluation process has been carried out, assess the training strategy employed to detect areas for improvement, which should be in place before future evaluation processes take place.	9.00	9.43	0.51	1.00	0.52	0.00
2	Devise *support formats* for the assessment model (data collection sheets, for example, for some of the competencies evaluated) so that a set of objective data can be collected, representing the behaviours assessed during a specific period, as an aid to completing the evaluation at the particular moment it must be executed.	9.00	9.23	0.83	1.00	0.62	1.00
3	Create a face-to-face training programme for the assessment model, aimed at the assessors.	9.00	9.19	0.85	1.50	0.51	0.00
4	Create a face-to-face training programme aimed at the assessors, with online training support.	9.00	9.15	0.80	1.00	0.23	1.00
5	Create a specific platform on the BHE intranet so that there is permanent communication with a personal trainer or coach assigned to each evaluator.	9.00	9.00	0.71	0.25	0.79	1.75
6	Equip the training system with the necessary resources and structure to be able to respond to training needs that are detected during the assessment process.	9.00	8.93	0.73	0.75	0.43	1.00
7	In the training programme, explain the content validity of the NCAS (Content validity: the NCAS includes aspects that represent the competencies evaluated. In other words: "It measures what it sets out to measure").	8.00	8.35	0.90	1.00	0.84	1.50

8	In the training programme, explain the reliability of the NCAS (*Reliability*: evaluations made by various assessors do not significantly differ).	8.00	8.32	0.95	1.00	0.29	0.75
9	Aim the training not only at the assessors, but also at those in charge of organisations and union representatives.	8.00	7.81	0.75	1.00	1.17	0.50
10	In addition to the assessor training programme, devise a training programme aimed at those being assessed, the main aim being to transmit the usefulness of the NCAS for improving in the work of those being assessed in order for the evaluation process to be more widely accepted.	8.00	7.65	1.07	1.00	0.77	1.50
11	Carry out a "*trainer training"* programme in advance, with specific training sessions for these future trainers (training or quality supervisors in the main and middle managers) so that they will later be responsible for training deployment in the assessment model at each hospital.	8.00	7.62	1.94	1.25	0.48	0.75
12	At the hospital level, transmit to the training or quality supervisor (or similar figure) the responsibility for training future assessors.	7.00	6.85	1.99	2.00	0.75	1.75
13	Carry out an online training programme via a specific intranet platform aimed at assessors.	6.00	6.54	0.88	1.00	0.80	1.50

Me = median value; $\bar{x}$ = average value; SD = standard deviation; IQR = interquartile range; SDV = variation of the standard deviation; IQRV = variation of the interquartile range

3- In relation to the strategy for the *commencement and monitoring of implementation:*

- ✓ Leadership and commitment from the project leaders are the most critical aspects in this area. Projects connected with systems for personnel competency assessments must be driven by top management in order to ensure involvement from all the collectives that will, one way or another, be affected.
- ✓ The process infrastructure takes on heightened relevance. The recommendations are to create an independent multidisciplinary consulting body that would be in control of monitoring the overall evaluation system, and guarantee coherence and objectivity in the evaluations made by assessors.

Table 4 shows the results of the third question: aspects to be considered with regard to the *commencement and monitoring of implementation.*

Table 4. Essential Factors in the Design of the Strategy for Commencing and Monitoring Implementation

Itemised actions to be taken		**Assessment (0-10)**		**Final consensus**		**Consensus variation**	
		Me	$\bar{x}$	SD	IQR	SDV	IQRV
1	Clearly identify a leader or referential figure as the head of the project in the BHS.	10.00	9.54	0.52	1.00	0.53	0.00
2	Clearly identify the team managing the project.	10.00	9.50	0.58	1.00	0.55	0.50

3	Submit the NCAS and its implementation to a process of review and continuous improvement, using different sources of information: opinions and contributions from assessors, those assessed, and hospital management.	9.00	9.12	0.71	0.25	0.39	1.25
4	Carry out a pilot application (pilot study) in a hospital or in different nursing services at various hospitals and evaluate it in order to detect problems and areas for improvement.	9.00	8.93	1.21	0.00	0.15	0.75
5	Create a specific platform in the BHS intranet to settle issues quickly and carry out monitoring of the process.	9.00	8.75	0.64	1.00	0.52	0.75
6	Put the NCAS in place at a relatively quiet time of the year.	9.00	8.73	0.72	1.00	0.35	0.75
7	Create an independent advisory body where questions and doubts can be aired, guaranteeing coherence in the assessments made by different hospitals and allowing both appraisers and those to be appraised to access it. This advisory body will have the capacity to make decisions about resolving interpretation issues and setting assessment criteria.	8.00	8.46	0.66	1.00	0.75	1.00
8	Progressively implement the NCAS at two different time points in the year so as to have enough time for the assessments.	8.00	8.31	0.48	1.00	0.89	0.00
9	Create a mixed control and monitoring body formed by those who represent the different organisations involved, the appraisers and those being appraised, as well as by technicians with expertise in evaluation processes and other personnel who might be deemed suitable (for instance: nurses, an HR director, psychologists, a head of communication, technicians, legal professionals…). Each hospital would have its own monitoring and control body, and a central body in the central organisation would be put in place for the whole process.	8.00	8.18	0.89	1.38	0.41	0.88
10	Assign a specific tutor to each assessor during the entire evaluation process.	8.00	8.18	1.07	2.00	0.68	0.75

Me = median value; $\overline{x}$ = average value; SD = standard deviation; IQR = interquartile range; SDV = variation of the standard deviation; IQRV = variation of the interquartile range

In relation to the *general characteristics of the NCAS:*

- ✓ The model in itself has primacy in the whole process. It is important that competencies be clearly defined and that the model is valid and reliable. Greater trust in the system will therefore be generated among all the collectives involved.
- ✓ The assessment system must function with total transparency, acting to detect areas for improvement in the professional sphere and clearly differentiating between the professional and the personal, as well as allowing an opportunity for the assessor's evaluations to be arrived at through consensus with the person being assessed.
- ✓ Alignment of the NCAS objectives with the global strategy of the hospital is indispensable. It is important that the HR strategy be integrated within the hospital's generic strategy.

- ✓ Likewise, competency evaluations should take place progressively with all hospital professionals.

Table 5 shows the results of the last question; aspects to be taken into account with regard to the *general characteristics of the NCAS.*

Table 5. Essential Factors in the Design of the General Assessment Characteristics

Itemised actions to be taken		**Assessment (0-10)**		**Final consensus**		**Consensus variation**	
		Me	$\bar{x}$	SD	IQR	SDV	IQRV
1	Rigorous accepted definitions of basic nursing competencies.	10.00	9.83	0.39	0.00	0.96	1.00
2	Clear, unequivocal commitment from the leader and team managing the project *("Doing what they say they are going to do. If they haven't been able to, let there be no room for doubt that they tried their best").*	10.00	9.58	0.70	1.00	0.42	0.50
3	Invest the assessment system with total transparency whilst at all times respecting the legislation in force for personal data protection, making a clear distinction between the public sphere and people in their private lives throughout the whole evaluation process.	9.50	9.42	0.67	1.00	0.32	0.00
4	Align the assessment system objectives with those of the strategic policy of the BHS and the hospital.	9.00	9.33	0.49	0.50	0.61	0.50
5	Prearrange a minimum work period for nurses in the unit (1 year, for instance) as a requirement for them to be subject to evaluation.	9.00	9.08	0.76	1.00	0.70	1.00
6	Continuous assessment (throughout the year), with support logs for the NCAS for the collection of data during the whole year, thereby helping to carry out the assessment at the required moment.	9.00	8.96	0.97	0.25	0.43	2.25
7	Use the assessment to detect areas for nursing improvement, which must be re-evaluated at a later date.	9.00	8.87	0.53	0.00	0.39	0.75
8	Make the NCAS available to the person being assessed via an online platform, enabling both their evaluation by other people (360º assessment) and by themselves, if they so desire.	9.00	8.73	1.33	0.25	0.59	2.25
9	Gradual application of the assessment to the nurses and to all other NCAS professionals (physiotherapists, doctors, nursing auxiliaries, etc.).	8.00	8.36	0.74	1.00	0.88	0.00
10	Give the person being appraised the opportunity to validate or approve the assessment that the appraiser has made of their competencies. Appraiser and those being appraised should have a chance to agree upon the evaluation that they have each made separately (assessment with self-assessment).	8.00	8.27	1.20	1.00	1.38	0.50

Me = median value; $\bar{x}$ = average value; SD = standard deviation; IQR = interquartile range; SDV = variation of the standard deviation; IQRV = variation of the interquartile range

5. CONCLUSIONS AND IMPLICATIONS FOR MANAGEMENT

The results obtained in the study carried out in public hospitals in the Basque Country are basically in concordance with those collected in the literature that was consulted. The importance of the assessors' role (Hatfield and Lovegrove, 2012; Lovegrove and Hatfield, 2012; Parrish and Crookes, 2014), need for clear permanent leadership, clear well-directed communication, and an alignment of the NCAS objectives with those of the organisation were also highlighted in our study. The methodology utilised allowed us to break down these large lines of action into more concrete ones, and to rank their relative importance.

In order to guarantee the success of applying an NCAS, it is necessary to be able to rely on one that has been tested (General Medical Council, 2014) and to involve senior and middle management in its implementation via a participatory methodology.

The implementation strategy must be accurately planned and must include, at minimum, the following elements (General Medical Council, 2014): communication of the real aim of the NCAS, training both the nurse supervisors and nurses, monitoring the process with a team of qualified professionals, observing objectivity in the assessment, and making sure there is alignment with the global strategy of the hospital.

The result should be an NCAS that has been set up and accepted, enabling managers to determine the competency level of their nurses and put strategic plans in place so as to match their capabilities to the organisation's present and future needs.

6. LIMITATIONS OF THE STUDY

Finally, we must point out that this work was carried out within a specific health system, the BHS, and this evidently constitutes a limitation. Each organisation is different, even within the same country, and more so if we bear in mind the cultural and institutional differences that distinguish different countries. Accordingly, as a future research line, it would be interesting to extend the study, employing the same methodology, to different health systems and to analyse the main problems encountered as well as solutions to them, working with a larger population of the NCASs that are currently in place.

Other areas of interest for future studies are the statistical test of the goodness of the proposed changes and the analysis of the relationship between the successful implementation of NCAS and aspects such as the organizational culture of the company, its corporate strategy and Human Resources policies or the involvement of top management in the design and implementation of the system.

- La cultura organizativa de la empresa
- La estrategia corporativa y las políticas de recursos humanos
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7. REFERENCES

BARNEY J.B. and WRIGHT P.M. (1998): "On becoming a strategic partner: the role of human resources in gaining competitive advantage", Human Resource Management, Vol.37, No.1, pp. 31-46.

BULLER P.F. and MCEVOY G.M. (2012): "Strategy, human resource management and performance: Sharpening line of sight", Human Resource Management Review, Vol. 22, No. 1, pp. 43-56.

BYARS L.L. and RUE L. W. (2010): Human Resource Management, Mc Graw Hill-Irwin, Boston, MA.

CAPALDO G., IANDOLI L. and GIUSEPPE Z. (2006): "A situationalist perspective to competency management", Human Resource Management, Vol. 45, No. 3, pp. 429-448.

CUSACK L. and SMITH M. (2010): "Power inequalities in the assessment of nursing competency within the workplace: implications for nursing management", Journal of Continuing Education in Nursing, Vol. 41, No. 9, pp. 408-412.

DALKEY N. and HELMER O. (1963), "An experimental application of the Delphi Method to the use of experts", Management Science, Vol. 9, No 3, pp. 458-467.

DELBECQ A.H. and VAN DE VEN A.H. (1971): "A group process model for problem identification and program planning", Journal of Applied Behavioral Science, Vol. 7, No. 4, pp. 466-492.

DELBECQ A.H., VAN DE VEN, A.H. and GUSTAFSON, D.H. (1975): Group techniques for Program Planning, Scott, Foresman and company, Glenvew, IL.

DELLEFIELD M.E. (2007): "Implementation of the resident assessment instrument/minimum data set in the nursing home as organization: implications for quality improvement in RN clinical assessment", Geriatric Nursing, Vol. 28, No. 6, pp. 377-386.

FARNHAM, D. and STEVENS, A. (2000): "Developing and implementing competence-based recruitment and selection in a social services department", The International Journal of Public Sector Management, Vol. 13, No. 4, pp. 369-382.

GENERAL MEDICAL COUNCIL (2010): "Workplace based assessment: a guide for implementation", available at: http://www.gmc-uk.org/Workplace_based_assessment_31381027.pdf (accessed 30 June 2014).

GIBSON F., FLETCHER M. and CASEY A. (2003): "Classifying general and specialist children´s nursing competencies", Journal of Advanced Nursing, Vol. 44, No. 6, pp. 591-602.

GRIESSER M.J., BERAN M.C., FLANIGAN D.C., QUACKENBUSH M., VAN HOFF C. and BISHOP J.Y. (2012): "Implementation of an objective structured clinical exam (OSCE) into orthopedic surgery residency training", Journal of Surgical Education, Vol. 69, No. 2, pp. 180-189.

HAREL G.H. and TZAFRIR S.S. (1999): "The effect of human resource management practices on the perceptions of organizational and market performance of the firm", Human Resource Management, Vol. 38, No. 3, pp. 185-200.

HATFIELD D. and LOVEGROVE J. (2012): "The use of skills inventories to assess and grade practice: Part 2- Evaluation of assessment strategy", Nurse Education in Practice, Vol. 12, No. 3, pp.133-8.

HENNERBY C. and JOYCE P. (2011): "Implementation of a competency assessment tool for agency nurses working in an acute paediatric setting", Journal of Nursing Management, Vol. 19, No. 2, pp. 237-245.

HORTON S. (2000): "Competency management in the British civil service", The International Journal of Public Sector Management, Vol. 13, No. 4, pp. 354-368.

JASPER M. and CROSSAN F. (2012): "What is strategic management?", Journal of Nursing Management, Vol. 20, No. 7, pp. 838–846

KRUEGER, R.A. (1991): Focus Groups—a practical guide for applied research, Sage, London.

LANDETA J. (2006): "Current validity of the Delphi method in social sciences", Technological Forecasting and Social Change, Vol. 73, No. 5, pp. 467-482.

LANDETA J., BARRUTIA J. and LERTXUNDI A. (2011): "Hybrid Delphi: a methodology to facilitate contribution from experts in professional contexts", Technological Forecasting and Social Change. Special issue: The Delphi technique: current developments in theory and practice, Vol. 78, No. 9, pp. 1629-1641.

LINSTONE H.A. and TUROFF M. EDS. (1975): The Delphi Method, Techniques and Applications, Addison-Wesley, Reading, MA.

LOVEGROVE J. and HATFIELD D. (2012): "The use of skills inventories to assess and grade practice: Part 1- Design and implementation", Nurse Education in Practice, Vol. 12, No. 3, pp.127-132.

MERETOJA R., ISOAHO H. and LEINO-KILPI H. (2004): "Nurse Competence Scale: development and psychometric testing", Journal of Advanced Nursing, Vol. 47, No. 2, pp. 124-133.

MERTON R.K., FISKE M. and KENDALL P.L. (1990): The Focused Interview: A Manual of Problems and Procedures, 2nd edn., The Free Press, New York.

NHS NATIONAL HEALTH SERVICE (2005): A national framework to support local workforce strategy development. A guide for HR directors in the NHS and social care. NHS, Leeds, UK.

O´HARA N., DUVANICH M., FOSS J. and WELLS, N. (2003): "The Vanderbilt Professional Nursing Practice Program: Part 2. Integrating a Professional Advancement and Performance Evaluation System", Journal of Nursing Administration, Vol. 33, No. 10, pp. 512-521.

PARRISH D.R. and CROOKES K. (2014): "Designing and implementing reflective practice programs - Key principles and considerations", Nurse Education in Practice, Vol. 14, No. 3, pp. 265-70.

SPEERS J. (2008): "Service user involvement in the assessment of a practice competency in mental health nursing – Stakeholders' views and recommendations", Nurse Education in Practice, Vol. 8, No. 2, pp. 112-119.

STEABAN R., FUDGE M., LEUTGENS W. and WELLS, N. (2003), "The Vanderbilt Professional Nursing Practice Program, Part 3: Managing an Advancement Process", Journal of Nursing Administration, Vol. 33, No. 11, pp. 568-577.

WILKINSON C.A. (2013): "Competency assessment tools for registered nurses: an integrative review", The Journal of Continuing Education in Nursing, Vol. 44, No. 1, pp. 31-37.