COMPETENCY MANAGER AS A VERY USEFUL COMPETENCY MANAGEMENT TOOL

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Keywords

Abstract

The Competency Manager provides competency management in relation to the holder in accordance with the standards of safe and quality health care providing. The application is created based on the competency model of a general nurse. The model meets the required standards of the quality and safe health care within the hospital quality certification. The competency model is based on the range of competencies of each general nurse providing health care in connection with the profession, the development and long-life education within the hospital mission. The application is intended for all professional groups of hospital staff and has been implemented in the hospital intranet environment. The Competency Manager software application was implemented for the Hospitals of the Pardubice Region (Nemocnice Pardubického kraje, a.s.) under the license agreement in 2021. The Competency Manager application was created as a result of the Technology Agency of the Czech Republic project: The Competent Nurse of 21st Century conducted in 2019-2021. The Hospitals of the Pardubice Region were involved in the project as an application supervisor.

1. Introduction

For proper nursing care provision, the importance of competency definitions is undeniable. Equally definition of competency is important for setting up a nursing education curriculum. It is also important to identify the development process of nursing competency for professional growth. Nevertheless, the concept of nursing competencies has not been fully developed. The challenges remain in determining the definition and structure of the nursing competency, the levels of competencies necessary for nursing professionals, training, and management methods. Therefore, further research is needed to develop a comprehensive concept of nursing competency (Fukada, 2018). Glajchová et al. (2021) state that setting of competencies and performance of the profession within the defined and fixed range is an area that also affects the perception and performance of the nurse's profession as such. In the qualitative survey that preceded the presented questionnaire survey, most informants commented on exceeding competencies as a fact that is part of the daily work routine.

The article follows the article titled Information System Architecture for Competency Model (Holá, Čegan, 2019) that explained and clarified the chosen software system architecture for building a competency management system and described the technical solution. The article focuses on the support methodology for creating the content of a specific application of the system called the Competency Manager. The Competency Manager is a tool for competency management and was implemented in the Hospitals of the Pardubice Region ICT system to manage the nurses´ competencies primarily. At present, the authors concentrate on creating of competency models for other professionals group employees in the hospital.

2. Methodological Framework

One of the basic prerequisites for the model successful creation and implementation is the involvement of stakeholders and users who will work with the model and help to promote it based on their willingness to participate in the development already during the project preparation. Therefore, a stakeholder-based strategy (Gallagher-Ford et al., 2011) based on the evidence-based practice was chosen as the implementation strategy.

According to Ivlev, Kneppo, Barták (2015), the most relevant criteria for the selection of the expert group are the experts´ experience in dealing, the experts´ theoretical background (awareness) and the experts´ knowledge, the experts´ current position and the level of his or her education and scientific record. The selected expert group (panel) was therefore made up of experts who would work with the model and for whom the development and subsequent implementation presented a wide range of issues and concerns from the beginning as they were involved in the competency allocation and evaluation. The group was based on two basic sources of competencies from the Czech legislation regulating professional competency based on the EU curriculum and the needs of an organization. The expert panel of 11 senior nurse managers of the Hospital of the Pardubice Region and two external experts as representatives of other 2 application guarantors for evaluation were set up to determine the key competencies.

All experts of the expert group have had more than 20 years of experience as general nurses and have held management positions for the last 5 years as minimum. The expert panel worked in the form of guided discussion based on brainstorming. The researchers of the project gradually brought topics according to the chosen procedure for discussion. The reviewers commented on the conclusions of the expert panel and thus provided feedback, approving the accepted consensus. The expert group defined the requirement for a competent nurse as a nurse who is authorized, independent, professionally qualified, able, but also willing to deliver performance or carry out an

activity in the required quality, within the required time in compliance with the nursing care processes defined by the quality standard (learns quickly, cooperates, delegates, is educationally equipped, his/her behaviour and actions are in line with the ethical standards). The definition of a competent nurse and the basis for the creation of competencies is based on the concept of Raven (2011) which proves that expert competency (given by law in case of nurses) may not be sufficient to define the competency. Professional competency must be linked to motivation, desirable attitudes. He sees the way of competency development, the way to professionalism in connection with professional development, which must be regularly verified and enhanced. The same conclusions are reached by Beauvais (2019) and Becher (2001).

The idea of the model system design is based on the system definition according to Hall and Fagen (1968). A system is a set of elements and their properties, connected by mutual relations. Here the competence management system can be understood as a set of elements that are individual components of the whole, are in constant mutual interaction and the common synergy forms the properties of the whole. The main elements of the competency model system are a defined competency (the described performance), a holder (an employee), a competency allocator and verifier (a manager) and their interaction in the processes of the recruitment, adaptation, evaluation, and education within the competency development (Armstrong, 2008).

During the competency model development, all the techniques recommended by Kubeš (2004) were applied: taking over, combining, and creating a new model in order to capture and develop the intellectual capital, the bearers of which currently work as hospital nurses. The takeover was performed by using researchers' existing experience and the COPA model (Lenburg, 1999). The combination was reached by incorporating the specifics of the organization for which the model is created into the adopted model. The existing experience and currently set processes were added to the model, and thus a new model was developed; it contains hitherto undescribed areas of competency and comprehends the situation in the hospital, preferences, goals, and possibilities in terms of operation. Kubeš (2004) also shows the way to the requirements for competency models so that the model is sufficiently general, specific, and generic. The authors supplemented the requirements in terms of the main goal, namely, to ensure the management of competencies in relation to the bearer (the competency life cycle), and the evaluation and development in the context of personnel management (Armstrong, 2011).

The Evidence-Based Competency Model according to Winter (2018) was used for the initial classification of competencies in 5 categories: resource use, cooperation, quality, and safety, evidence-based practice (EBP) and information and communication technology (ICT). The COPA model (Lenburg, 1999) is based on the need to adapt and meet goals in clinical and academic settings and is specifically focused on nursing. The model follows the current and future needs of the professional practice, and the creation is based on the expert panel working in compliance with issues listed below.

- What are the basic competencies and outputs needed for practice?

- What are the criteria available to define these required competencies?

- What will be the most effective ways to learn or expand new competencies?

According to Lenburg (2009), the competency model for a nurse should include the competencies in the following areas.

- Competency to determine the severity of the situation: assessment and intervention skills in the context of safe care, patient monitoring, and treatment procedures.

- Communication competencies - verbal, nonverbal communication, written, presentation, PC skills.

- Critical thinking competencies: evaluation, decision-making, linking information to determine nursing progress, prioritization, research, implementation of best practice in the context of the Evidence Based Practice

- Competencies focused on maintenance and building relationships - morality, ethics, respect for cultural and religious differences, cooperation, and advocacy of the patient.

- Management competencies: planning, organizing, delegating, capacity utilization, performance and safety assessment and improving the quality of care.

- Leadership skills: cooperation, assertiveness, creativity etc.

- Pedagogical and educational competencies: within the development of the field, patient education and mentoring.

- Integration of knowledge: linking nursing to other related disciplines.

3. Competency Model Development

The expert group defined the competency management system as the life cycle (acquisition, consolidation, development, transfer). Thus, it proposed the main functionalities, methods of acquiring competencies, their maintenance and development, and ways to objectively and correctly evaluate the results of fulfilling the required competencies.

The new model and subsequently the application on the competency management resulted from the main requirements set by the expert group. There were 2 basic questions: What key competencies should a nurse have in a particular workplace? And how do we want to verify and develop these competencies? The main requirements were then described as processes leading to achievement of the defined goals: setting competencies for a specific position, assigning competencies to a specific employee, reassessing competencies in the adaptation period and in the stabilization period and in managing changes in the employee's career.

The model setup requirements were as follows:

- the model should include specific but also general competencies that are common to all employees such as management, soft skills, education and training, and quality and safety competencies,

- the model should enable the creation of sufficiently specific competencies directly related to the defined work and should also serve for the development of the employee and his evaluation,

- the developed model is generic (generally applicable to other professions),

- the model must contain templates for individual workplaces,

- the spectrum of competencies of each employee is up-to-date and corresponds to reality, a digital footprint and archiving is provided, expiration settings and expiration annotations force to keep the relevant participants updated,

- the model connects each specific competency with the educational activity at the time of adaptation or training and the further development (the education plan) and links it to the internal documentation, i.e. the model should enable the management of the competency within the life cycle in relation to the main phases of the personnel management: adaptation and training, performance management and employee self-evaluation, consolidation and development of competencies related to the career development.

The EB model by Winter (2018) was used as a suitable springboard but it appeared insufficient for division and categorization of the competencies. The COPA model has proved more appropriate (Lenburg, 1999). Using the above-mentioned COPA model, the expert group identified key competencies in the following 8 areas, see tab. 1.

There were 81 competencies defined for the group of employees in the profession of a general nurse which is shown in table 1. Some competencies that have not yet been managed were systematized, such as leading the adaptation process, competencies of trainers, mentors, peers, crisis intervention coordinators, etc. The selection and definition of competencies was accompanied by the unification of concepts and internal processes of the 5 health care facilities concerned.

Table 1 The Overview of the Created Competence Categories

Category	Number	Example
Key nursing competencies	20	Cardiopulmonary resuscitation
Specific nursing competencies - performed under professional supervision or independently based on the acquired certificate (a certified or accredited course, specialization education)	25	Chronic wound management
Quality and safety	8	Prevention of hospital acquired infections
Educational and pedagogical competencies	5	Mentor, educator, trainer
Administration	4	Auditing, documentation man., IS
Evidence-Based Practice	4	Best practice implementation
Management	9	Leadership, communication
Soft skills for professionalism	6	Development of cooperation

The key competencies selection considered the type of a workplace and type of care provided. The birth certificate (see tab. 2, a basic unit for each competency) was created, also the rights for granting and reassessing of competency were set, each specific competency was connected to the educational activity at the time of adaptation or training and to the further development (a training plan) and linked to the internal documentation. There is a guide of the created application to clarify the key competencies as well as by whom, when and based on what they are re-evaluated and how they will be developed.

Table 2 The Birth Certification of Competency

Competency Name	Care of a Patient with a Stoma
Description	Assesses and treats the condition of the stoma and skin, recognizes complications, prevents risks, etc.
Group of competencies	Key nursing competency
Approval authority	Head nurse
Competency requirements	Nursing performance under the supervision of a trainer in the adaptation process
Reassessment of competence	Annual performance review
Intended for	Nurse and paramedics at surgery
Compulsory/recommended education	Internal training per 2 years
Internal standards concerned	Internal standard XX and documents XX

4. Discussion

The competency model centralizes all necessary competencies and reviews the required and completed education which will enable the systematic creation of a training plan and effectively maintain or increase the level of achieved competencies and expand their spectrum if necessary.

Within personnel management, the competency model will enable linking of an employee evaluation to his or her professional and career development. Armstrong (2008) described that clarifying the job descriptions and developing key competencies as well as objective evaluation of employee performance are the core elements of leadership and help to enhance engagement. The specific competency model provides a tool for leadership (Bedrnová et al.; 2012). Dalkrani and Dimistriadis (2018) proved that understanding sense of work and the development clearly influences job satisfaction. The support and development of competencies strengthen one's own identity and professionalism and are sources of satisfaction / dissatisfaction and well-being of practice nurses in the UK (Wood, 2021).

The competency management and even the creation and implementation bring the significant benefits to an organization. During the competency management system producing, the deep links between the personnel processes from recruitment to onboarding and training to performance evaluation and staff development were revealed. The competency management created and defined not only the primary framework for setting the key competencies for each professional group, but also the main competencies in accordance with the organization's mission as well as the framework for annual performance review and self-appraisal of employees to boost their development. The Numminen study (2016) revealed the significant connections between commitment and competency settings, fluctuation intentions, and job satisfaction.

The additional benefits will come from the application as part of a continuous improvement in the quality of health care. The competency model connects all key competencies and lifelong learning which will enable the systematic creation of a training plan and effective maintenance or increasing the level of achieved competencies or increasing the level of safety and quality of care provided. According to Marx (2019) from the Joint Commission on Accreditation (i.e. the accreditation authority for granting a quality certificate), the most common causes of adverse events are as follows and the competency model responses to minimize the risks, see tab. 3.

The main benefits of the Competency Manager implementation consist in the process systematization, setting up the standard processes within the personnel management at all levels and at the lowest level of direct management, the effective education using organizational potential and better conditions for spreading the good name of the hospital by the employees by improving the quality of personnel management.

The formed groups of competencies often find an intersection in competencies published and recommended abroad, e. g. the Nursing Practice and Skill (Schub E., Balderama B., 2017) and the Leadership Competencies for Healthcare Services Managers (International Hospital Federation, 2015). The inability to adopt the entire models is due to the differences in the assigned professional competencies of the nurses as well as the different internal management system. The proposed system simply shows the way to get to the required level of competency management. It is a tool intended for the management staff and expands their knowledge of the system management. The system does not retain the ambition of a single possible solution but provides an insight into a possible solution, a scenario of possible settings. In any case, the proposed system is broad enough to serve as a basis for setting up of the competency management anywhere. The bonus is that the proposed system is also based on the principles of open communication to increase employee engagement. These principles often appear in the literature as the principles of leadership (Armstrong, 2008) and management (Bedrnová et al., 2012). These are, above all, the principles of partnership, mutual benefit, justice, openness, and moral authority.

Table 3 Possibilities of Elimination of the Adverse Events Main Causes by the Software Competency Model Functionalities

Causes of Adverse Events	Competency Manager Functionality
Defective or insufficient communication	The key competency in connection with education, the system for monitoring of competency settings and relevant communication
Insufficient onboarding during the adaptation process	Defining the key competency helps to set the prioritized activities, the system provides clearer administration for verification and reassessment of competencies, and stores the history of the adaptation process as part of educating
Insufficient supervision of subordinate staff (vaguely or incorrectly assigned competencies)	The system standardizes the setting of competencies, the creation of templates, sets the requirements, and offers streamlining of work within the management of competencies, education, evaluation, and personal development
Insufficient staffing	The overview of currently set competencies provides greater flexibility for the work potential exploitation, the professional competency management, training, and evaluation for enhancing engagement and stability.

5. Conclusion

The created competency model is ready for implementation and integration into a common intranet environment, including a tutorial for administration and specification the IT equipment parameters. It has been designed with intuitiveness and user friendliness in mind. To increase user availability and comfort, it is also optimized for mobile devices. The work with the application itself was the subject of courses supporting the competencies in the field of employees´ digital literacy and competencies for creating new competencies. On the part of the operating organization, in addition to meeting the IT requirements to connect to the source or production databases of other systems, e. g. VEMA (2022), it is necessary to ensure personnel capacity for administration (regular content updating, setting user sign-in data and access rights, training, etc.) and further development. The additional staff capacity needs to be set aside in the field of education to ensure all areas of lifelong learning are linked to the individual competencies. Ensuring of efficient operation fully depends on the top management support. The implementation of the application requires a change in the processes, or work at all levels of management, but also in the attitude of the employees themselves in the sense of their own self-development which should be conceptual for fulfilling their own long-term work objectives. Thanks to the chosen strategy of the main stakeholders´ involvement, the authors assume the easier acceptance of the mentioned changes.

The proposed system follows the idea of the different approaches unification within the organization. The system is sufficiently understandable, accessible, general, verifiable, and timeless. These principles clearly help to explain and implement the system. The comprehensibility of the system results from the simple description and use of the terminology of professional practice and common management sciences. Availability is based on the absence of relevant access barriers in the implementation of the system. In general, the system is available because it can be deployed in any organizational environment regardless of the specifics of the organization scope, regardless of a size or region. The validity of the system is conclusive especially in determining the state of competency management (during the audits) and in increasing its level. The system is also timeless as, despite the rapid technology development, the basic ideas and principles remain the same, the form is stable, the content of the principles is permanent, and the competence description can be changed according to the current state.

The principles accurately reflect the basic organizational culture in which all employees like to work. The proposed competency management model using the Competency Manager application

can therefore also contribute to increasing the quality of care and organizational culture. The work on the project was complicated by the pandemic situation, was often relegated to the background, and the completion itself was delayed by 3 months (June 2021). However, the implementation of the model and the completion for other professions have been permanently blocked by other hospital priorities. Nevertheless, despite the situation, the competency model for nurses is functional.

6. Acknowledgements

7. References

Armstrong M. (2008) Human Capital Management: Achieving Added Value Through People. 1. ed. London: Kogan Page. ISBN: 978-0749453848

Armstrong M. (2011) Řízení pracovního výkonu: Cesta k efektivitě a výkonosti. 1. ed. Praha: Fragment. ISBN: 978-80-253-1198-1

Beauvais, A.M. (2019) Leadership and Management Competence in Nursing Practice. New York: Springer Publishing Company. 2019. ISBN: 978-0-8261-2524-8

Bedrnová et al. (2012) Manažerská psychologie a sociologie.1. ed. Praha: Management Press. ISBN: 978-80-7261-239-0

Becher, T. (2001). The incapable professional. In J. Raven & J. Stephenson (Eds.), Competence in the Learning Society. New York: Peter Lang

Dalkrani M., Dimistriadis E. (2018) The Efects of Job Satisfaciton on Employee Commitment. Interantional Journal of Business and economic Sciences Applied Research. Vol 11, No.3, 16-23 DOI: 10.25108/ijbesar.113.02

Fukada M. Nursing Competency: Definition, Structure and Development. Yonago Acta Med. (2018) Mar; 61(1): 1–7. Published online 2018 Mar 28. DOI: 10.33160/yam.2018.03.001

Lenburg, C. (1999) The Framework, Concepts and Methods of the Competency Outcomes and Performance Assessment (COPA) Model. Online Journal of Issues in Nursing. Vol 4, No. 2, Manuscript 2. Available:

https://ojin.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume 41999/No2Sep1999/COPAModel.html

Gallangher-Ford L, Fineout-Overholt E, Melnyk BM, Stillwell SB (2011). Implementing an evidence-based practice change. Am J Nurs 111(3): 54–60. DOI: 10.1097/10.1097/01

Glajchová, A et al. (2021) Job satisfaction of general nurses in standard and intensive care units: "The nurse is a jack-of-all-trades!". Kontakt, 2021, roč. 23, č. 4, s. 289-296

Hall A. D., Fagen M. (1968) Definition of System. Walter F. Buckley: Modern Systems Research, s. 82.

Holá, J., Čegan, L.(2019) Information System Architecture for Competency Model. IDIMT-2019 Innovation and Transformation in a Digital World. Linz : Trauner Verlag, 2019, s. 369-376. ISBN 978-3-99062-590-3

International Hospital Federation (2015) Leadership Competencies for Healthcare Services managers. Avalaible from: Leadership_competencies_healthcare_services_managers.pdf (ache.org)

Ivlev, Ilya & Kneppo, Peter & Barták, Miroslav. (2015). Method for Selecting Expert Groups and Determining the Importance of Experts' Judgments for the Purpose of Managerial Decision-Making Tasks in Health System. E a M: Ekonomie a Management. 18. 57-72. DOI:10.15240/tul/001/2015-2-005

Kubeš, M. et al. (2004) Manažerské kompetence. Způsobilost výjimečných manažerů. 1.ed. Praha: Grada Publishing, 2004. 184 s. ISBN 80247-0698-9

Numminen O.et al. (2016) Newly graduated nurses' occupational commitment and its associations with professional competence and work-related factors. Journal of Clinical Nursing. 25 (1-2) (pp 117-126). DOI: 10.1111/jocn.13005117

Raven J. (2011) Competence, Education, professional development, psychology, and Socio-Cybernetics. In G.J. Neimeyer (Ed.). Continuing Education: Types, Roles, and Societal Impact. Nova Science Publisher, Inc., Hauppauge, New York. ISSN 11788-3619

Schub E., Balderama B. (2017) Nursing Practice and Skills Cinahl Information Systems. Avalaible from: NRCP_NPS_CaringPatient-w-ChemicalExposure.pdf (ebscohost.com)

VEMA (2022) Mzdový a personální informační system. Avalaible from: https://www.vema.cz/cs/ekonomicky-system%20

Winter, P.B. (2018) The design of an Evidence-based Competency Model. Journal for Nurses in Professional Development. Vol 34/4, 206-211. ISSN 3169-9798

Wood, E. et al. (2021) Sources of satisfaction, dissatisfaction and well- being for UK advanced practice nurses: A qualitative study. Journal of Nursing Management. ISSN 0966-0429. DOI:org/10.1111/jonm.13245