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### EDITORIAL

HEALTHCARE WORKERS DURING THE COVID-19 PANDEMIC: AN EMERGENCY SITUATION

### REVIEWS

INNOVATION IN NURSING PRACTICE AND EDUCATION

### RESEARCH ARTICLES

INTRODUCING THE GREEK ADAPTATION OF ACUTE STRESS DISORDER SCALE' (ASDS), HIGH RELIABILITY AND VALIDITY IN AN EPIDEMIOLOGICAL SAMPLE

INVESTIGATION OF THE WORKPLACE BOREDOM AND JOB SATISFACTION TO THE AMBULANCE PERSONNEL OF CRETE, GREECE

THE EFFECT OF PERCUTANEOUS AND SURGICAL TRACHEOTOMY ON THYROID HORMONES LEVELS

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## REVIEW

## INNOVATION IN NURSING PRACTICE AND EDUCATION

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**Abstract**

**Background:** Innovation is defined as "the applied use of knowledge for the production and provision of new or substantially improved products, processes or services that find direct productive, utilitarian or commercial application. Innovations in healthcare fall under the broader umbrella of social innovations.

**Aim:** The presentation of innovation in the field of nursing science and the promotion of its beneficial role in the development of nursing practice and in the improvement of the care provided.

**Material and method:** A literature review was conducted in online databases (Google Scholar, PubMed) with appropriate indexing words. Articles published in Greek or English language were sought, in reputable journals with a publication date after 2000.

**Results:** In nursing, as in science and art, there are both elements of product innovations and elements of process-related innovations. Innovation in nursing science is widespread with the direct effect of improving nursing practice, patient experiences and providing care.

**Conclusions:** By proposing and implementing innovations in nursing science, important results are achieved such as modern concepts, new knowledge and skills, scientific recognition of nurses, the formation of a different work culture as well as higher incomes. The nurse leader forms a working culture of innovations, encourages nurses in continuing education, facilitates the development of innovations and actively participates.

**Key words:** : Innovation, nursing practice, education, culture, patient care, leadership.

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## INTRODUCTION

Innovation in healthcare continues to be a driving force in the effort to balance costs and improve the quality of healthcare. It is considered a critical component, both for the productivity of health organizations and for their competitive survival. It concerns technological innovations, product innovation, the introduction of new types of services, process innovation and leads to quality assurance and improvement.<sup>1</sup>

Innovation in healthcare can be defined as the introduction of a new concept, process, or product aimed at improving treatment, diagnosis, education and research, with long-term objectives of improving quality, safety and reducing costs. The International Council of Nurses has commemorated World Nurses Day 2009, underlining the role of Nurses in health care innovation, particularly in the field of Community.

The development of the topic of innovation in the field of nursing is of particular importance, considering, that nurses around the world are involved daily in innovative activities, with motivation and desire to improve the end result of patient care and reduce costs in health system.

The review of the literature helps nurses gain a multifaceted understanding of innovation that will be added to existing knowledge. By analyzing the term and highlighting its advantages and benefits in nursing practice and education, nurses are pushed to develop reflection on new future actions in the field of nursing and to implement them within the framework of appropriate conditions.

## AIM

The aim of the present article was to present the historical innovative action of nurses in the field of nursing science and to highlight its beneficial role in the development of both nursing practice and education, as well as in the improvement of patient care.

## METHODS

A literature review was conducted in online databases (Google Scholar, PubMed) with appropriate indexing words such as: Innovation, nursing practice, education, culture, patient care, leadership.

Articles published in Greek or English language were sought, in reputable journals with a publication date after 2000. Fifty references met the criteria and of these, thirty-two were chosen as the most suitable for the development of the subject.

## RESULTS

### THE CONCEPT OF INNOVATION

In the literature, there are many definitions of the concept of innovation. Given the history of the innovation idea, the word means "a new and different thing to do". In Latin, innovation comes from the root of the word novum which means the new.<sup>3</sup>

Innovation is described as something that will renew science and technology, so that society can benefit from them, or something that will invent things, so that we can make a difference. Most innovations, whether in the public or private sectors, come from staff working in these organizations and not from laboratories, policy makers or senior leaders.<sup>4</sup>

According to the International Council of Nurses (ICN), innovation is the process of developing new approaches, technologies and ways of working.<sup>3</sup>

According to another definition, Innovation in the field of nursing, is defined as the deliberate introduction and application of roles, groups, organization of ideas, new products and processes, which are designed to significantly benefit the individual, group, organization or wider society. It may be about designing and developing a new product or service, but it may also be about modifying an existing product or redesigning an existing service. The innovative factor of an innovation does not have to correspond to its impact.<sup>5</sup>

Innovation is the application of creativity or problem solving that leads to a widely adopted strategy, product, or service that satisfies a need in a new and different way. Innovations are about improving quality, efficiency and often reducing costs<sup>6</sup>

It is considered a keyword and is often used in the field of health. It is vital to maintain and improve the quality of care. Nurses play a key role in determining the quality of health and social care.<sup>7</sup>

Innovation in nursing practice is extremely important for improving health, preventing diseases, describing and avoiding

risk factors, developing a healthy lifestyle and contributing to the updating of knowledge and the development of new methods and services. It starts with a good idea, but it's much more than that. It also refers to the process of turning this good idea into something that can be used, which is workable and feasible, and will lead to better health promotion, disease prevention and better patient care.<sup>8</sup>

### **INTERNATIONAL PRACTICE**

Many organizations in different countries present health innovations that have led to improvements in safety, quality and outcomes and concerning patient care.

In England, the Academic Networks of Health Sciences (AHSNs) have the responsibility to align education, clinical research, information technology, innovation and healthcare provision to support economic growth. Innovation Exchange is a coordinated AHSN approach to identifying, selecting and supporting the adoption of innovations that have the potential to transform patients' lives. The "national portfolio" has also been developed, a collection of research studies highlighting the contribution that nursing and midwifery staff can make to transforming health and care.

The NHS Scotland innovation community website also contains a range of tools, processes and activities to support staff development, culture change and the integration of new ways of working. It is also linked to local innovation hubs within THE NHS Boards to support the development and implementation of innovative ideas created locally.<sup>5</sup>

In the U.S., the importance of supporting nurses' innovation is also recognized. In 2016, Massachusetts General Hospital launched a program in which nurses with innovative ideas could apply to win one of two \$5,000 grants from the hospital's nursing department. The director of nursing obstetrics at the hospital, has been leading nurses for one to two years as they study the potential market for an invention, create a prototype and apply for a patent. As the hospital's nursing innovation specialist, Nadel spends eight hours a week supporting the nurses winners.<sup>9</sup>

The ANA (American Nurses Association) has established the annual innovation awards. The ANA Innovation Awards include

a \$25,000 nurse award and a \$50,000 nurse-led team award. Money supports translational research, development, prototype, production, testing and application of an innovative product, program, project or practice that enhances safety and/or patient care outcomes. Winners have a year to further develop their innovation and present their results at a public event.<sup>10</sup>

### **ADVANTAGES AND OBSTACLES**

International experience as well as a review of research and bibliographical data show that the creativity of nurses in healthcare organizations can lead to significant changes in nursing practice and improved care and organizational performance.

By proposing and implementing innovations in nursing, the following are achieved:

new perception image, new knowledge and skills, scientific recognition, shaping of a different work culture and very often resources sparing.

Deterrents of innovative action are the established mentality and climate that does not favour change, conflicts between staff members, burn out, a negative attitude towards all kinds of innovation by the leadership, lack of supportive environment, fear of failure and bureaucracy.<sup>11</sup>

A successful innovation must take advantage of the current situation to be simple, flexible, compatible with the organization for which it is made. Its five main steps are knowledge, persuasion, decision, implementation and evaluation.<sup>12</sup>

### **THE CULTURE OF INNOVATION**

The degree of innovation is influenced by external factors such as local culture, central strategies and decisions as well as by the existence of non-essential resources. However, the internal culture of the organization is considered to be the most important factor. The climate of innovation in a health structure fosters the commitment and enthusiasm of staff, promotes learning and encourages unconfined thinking.<sup>13</sup>

What we call a culture of innovation consists of some basic characteristics. Because many ideas require significant changes, organizations should be flexible and encourage new ideas and

creative approaches. Trust is built over time through the joint effort, the recognition of mistakes and the adoption of appropriate behaviors. It is important that process supervisors be honest and make it clear that failure is acceptable. Also, because many ideas require significant changes, organizations should be flexible and encourage new ideas and creative approaches. Finally, open communication is essential. Employees should feel comfortable talking about their ideas openly and in a collaborative environment.<sup>14</sup>

Innovation in nursing is mainly about encouraging nurses to use their knowledge and skills to diversify past ideas and practices and develop new ones. Innovative proposals that are targeted and evaluated in the workplace really improve nursing practice. The introduction of new ideas and practices is important for improving the quality of patient safety care and reducing healthcare costs. Innovation is also vital for the further development of the nursing profession and its safeguarding as nurses should be ready to face future challenges. And as care is now weak-centred, nurses are able to develop creative and innovative strategies that can make a huge difference to the lives of patient-clients.<sup>15</sup>

Learning and innovation go hand in hand. Lifelong learning and professional development are well-established. Vocational education opens up horizons and leads to the exploration of new methods of nursing practice. A key example is the incorporation of information and education technologies into both nursing practice and nursing education.<sup>16</sup>

### **REAL EXAMPLES AND INNOVATIONS IN NURSING**

The English word 'innovation' comes from the Latin word 'innovatus', which means the start of a new method in a social, administrative or cultural environment. Nursing is based on a strong basis of innovation, proven through exceptional stories. Florence Nightingale invented the Polar Region Chart, a statistical tool used to monitor infection rates during the Crimean war and is still used today.

Anita Door, an emergency department nurse, frustrated by the constant concentration of materials during emergencies, invented the stroller. Sister Jean Ward, a nurse in charge at the nursery at Rochford Hospital in Rochford, Essex, UK, observed

that babies who were closer to the window and exposed to more sunlight had fewer cases of jaundice. This observation formed the basis of modern phototherapy.

Nurses have innovated in the name of social justice, inclusion and reform. In 1979, Joe Hogan, a registered nurse who wanted to obtain her bachelor's degree in nursing, was denied entry to Mississippi University, the only local institution that offered the bachelor's degree to women at the time. Alleging that her rights were violated, she went to court under the U.S. Constitution. In 1982, the U.S. Supreme Court ruled in her favor, ending gender discrimination in publicly funded nursing schools in the United States.

Ruth Nita Barrow, a nurse from Barbados, was the only woman in a group of social supporters who went to South Africa to negotiate Nelson Mandela's release. Through supporting Mandela, Barrow played a key role in securing his release from prison, accelerating the end of apartheid.

In 1984, Claire Bertschinger, a nurse of the Red Cross in Ethiopia, helped children affected by famine. An interview to BBC inspired Bob Geldof to create Band Aid, a live music fundraiser. Band Aid inspired Live Aid in the United States, where the song "We Are the World" was released in 1985. One of the largest charity music events in history, Live Aid saved over 2 million lives in Africa.<sup>17</sup>

The literature cites many examples of modern nursing innovations. An innovative program of documented resuscitation has been implemented by nurses and midwives in many countries with low resources. It is an education program that teaches neonatal evaluation and resuscitation techniques exclusively in hospitals and health centers, to traditional escorts, who manage the majority of births outside the healthcare area.<sup>18</sup>

Another innovative approach to saving newborns is being implemented in rural Haiti, where a pediatric nurse is changing cultural practices of umbilical cord care.<sup>19</sup>

### **NURSING INNOVATION AND PRIMARY CARE**

Over the past two decades, the International Organization of Nurses has led the way in shifting innovative action in the field of primary health care. 80% of primary care is provided by nurses and midwives. Some factors contributing to this, are the

direct and continuous contact of the nurse with the client or patient and the relationship of trust between them.<sup>20</sup>

In isolated areas of New Zealand and Ghana, a preventive Community program was implemented with vaccinations and teaching in health education. In the Netherlands and other countries, nurses are fully responsible for the care and monitoring of patients with type 2 diabetes mellitus, which has significantly improved the glucose control of these patients.

In Australia and specifically in the rural region of Victoria, community nurses implemented a physical examination and health education program (e.g. nutrition, hygiene, mental health) to all farmers working in dairy companies and their families. The result of the intervention was significant changes regarding the health and safety of those who participated in this program. The most important results were cholesterol reduction, lowering of body mass index and appropriate use of primary care services.<sup>21</sup>

### **THE ART AS INNOVATION IN NURSING**

The integration of creativity into health care has opened up a new horizon in nursing. Creative interventions have been shown to reduce hospitalization days as well as the patient's need for pain medications. Many major medical centers worldwide have included arts in health care programs. Arts in Medicine is such a program that serves hundreds of patients. (founded in the University of Florida) and is directly related to nursing care. Programs like this provide clinical models for nurses who want to integrate arts into healthcare practice.<sup>22</sup>

Creative ways offer nurses a new perspective on how to care for patients. The link between creativity and healing is well documented. That is why many hospitals have established programs that include arts and creativity. Unique links between nurses and patients play a key role in integrating creative arts into patient care. Many suggestions are given for the application of specific artistic means (e.g. music, drawing, dance, writing) in the clinical environment.<sup>23</sup>

### **NURSING INNOVATION AND LEADERSHIP**

In the design, promotion and implementation of innovations in nursing practice, nurses' leaders play an important role both at

the department level and more broadly. Innovation leadership skills are about adaptive problem solving, building a culture of improvement, facilitating a culture of development, supporting proactive thinking and response, and preparing organizations to stay up to date with changing factors.

There are several ways in which the leader will be able to support the innovation culture. It is very important that the leader creates a common vision and goal for all. Creating a vision with team members and their network increases the likelihood of success and makes it easier to overcome obstacles within the organization.<sup>24</sup>

Practices that can lead to the introduction and success of innovations in nursing practice, are the creation of a safe environment, the promotion and reward of cooperation between nurses, the reward of successes and learning through failure.<sup>25</sup>

The development of a climate of trust between the heads and subordinates is also considered crucial. Employees who trust leadership are more likely to think of alternative ways and innovations in their workplace and to participate actively in similar programs.<sup>26</sup>

To promote a culture of innovation in healthcare, leaders need to demonstrate pioneering thinking, risk-taking, tolerance to failure, flexibility and autonomy.<sup>27</sup>

### **INNOVATION IN NURSING EDUCATION**

In recent years, innovative teaching approaches have also been observed in nursing education. These teaching strategies make a difference in learning, problem solving, higher-level thinking and working within a group. Over the past two decades there has been a major overhaul and change of design in the curricula. New pedagogical and new ways of thinking about nursing education were introduced, clinical education was reviewed and reward schools for pedagogical innovation and research were created.<sup>28</sup>

Many of these new strategies aim to create active and collaborative learning in the classroom as well as in the online environment. One trend that is evident is the increase in the use of a classroom approach. Students attend recorded lectures and complete other learning activities to prepare to participate in active learning and problem-solving strategies.

The use of simulation continues to increase especially in nursing schools that have difficulties in securing clinical placements. Most students and teachers perceive simulation as a positive learning experience.<sup>29</sup>

Simulation and personal digital assistants (PDA) are some of the new learning strategies. Simulation is a teaching strategy that involves reproducing the learning experience of nurses in an educational and clinical environment

Clinical instructors use digital assistants for record-keeping and evaluation of students. Digital assistants are used for clinical evaluation, information on medicines, language and translation, calculations, identifications of normal laboratory values, scales of pediatric development, medical sign language, medical dictionary, anatomy, disease severity scales, growth charts and immunization instructions. Nurses are asked to fill out the categories of digital assistant standards such as "skills done" and "my learning" immediately after clinical time events. This instant reflection creates a description of their experiences and allows the clinical instructor to plan future tasks to move the student towards achieving the clinical goal.<sup>30,31,32</sup>

## CONCLUSION

Around the world, nurses are involved every day in innovative activities aimed at improving patient care and reducing costs. Many nursing innovations over the years have been a springboard for useful treatments and have made it easier to treat patients by facilitating medical and nursing work. Nursing innovation is based on existing problems, requires perseverance and thought outside the established ones.

The introduction of new ideas and practices differentiates nursing practice at all levels of care and culture in the working environment. It offers new knowledge and skills and leads to scientific recognition. New ideas and practices also reform nursing education by introducing new methods with better quality results.

The role of the leader is considered pivotal, as it is the one that, with its broad spirit and perception, shapes and supports the culture of innovations.

It is important in the coming years to invest in nursing innovation and to seek change, taking advantage of challenges and

always aiming to improve patient care.

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