



A study has shown that lifelong learning for health professionals can yield clinical and economic benefits.

What is the cost of not training professionals?

Technological and scientific advances require investment in professional learning in all areas, and this generates new expenses that organizations are not always willing to incur. A researcher who obtained his PhD at UPC-Barcelona Tech has now developed a numerical model which shows that the cost of lifelong learning for health professionals is actually significantly lower than the cost of not providing training.

A set of linear equations used to calculate the cost of medical treatments for healing chronic wounds. This is the formula Pedro Joao Soares Gaspar, who trained at the School of Health Sciences of the Polytechnic Institute of Leiria (Portugal), used as the starting point to develop his doctoral thesis at UPC-Barcelona Tech, within the framework of the Doctorate in Multimedia Engineering program. By employing a mathematical model, Soares has shown that lifelong learning and updating the knowledge of health professionals significantly reduces costs as well as improving the quality of treatments.

The mathematical model was based on a number of experiments in which health professionals had to choose treatments for virtual cases involving patients with chronic wounds. The professionals who took part had to assess, diagnose and treat the cases via an online simulator that provided relevant information about the patients and a realistic simulation of the basic steps involved in making clinical decisions. Using this tool, the health professionals could decide, for example, how to clean the wound and prepare its bed, what materials to place in the bed of the wound, and what other complementary procedures to perform.

Equations for determining the direct and indirect costs of the treatments selected by the health professionals were then applied to develop cost matrices for the actions taken, which represent the cost of proposed treatments. The costs associated with not providing training for health professionals were calculated by comparing the costs for selected actions with optimal costs (the amount that

would be spent if the therapeutic measures viewed as ideal in each case were taken).

COMPARING TRAINING

The first experiment allowed the researcher to compare estimated costs for treatments administered by health professionals who had different levels of specific training and experience in diagnosing and treating chronic wounds.

Treatment costs turned out to be higher in the case of health professionals who had not received accredited training on the treatment of chronic wounds. In contrast, they tended to become lower as the number of hours of training increased. A second experiment compared the cost of treatments administered by two groups of health professionals before and after one of the groups received 40 hours of specific training. The results showed that costs were reduced for the group that completed the training.

The results of this research are important because, as the author of the thesis puts it, "they provide scientific evidence that lifelong learning for health professionals, even in difficult economic circumstances, can yield clinical and economic benefits." It is clear that scientific and technological advances in the health field (and most other sectors) currently require professionals to pursue lifelong learning in order to adapt their knowledge to new realities.

Appropriate training that produces competent staff can help prevent clinical errors, bad practice, and poor performance, which—thanks to this mathematical model—have also been shown to increase medical costs.

THESIS

Author

Pedro Joao Soares Gaspar

Supervisors

Josep Maria Monguet Fierro, Department of Engineering

Presentation

Jordi Ojeda Rodríguez, Department of Management

Title

A model for estimating the cost of not providing health training on the diagnosis and treatment of chronic wounds

Why did you choose this line of research?

To demonstrate that investing in lifelong training for health professionals improves the quality of treatments and saves money.

Areas of application

All health contexts, with a process of prior validation

Contact

pedrgaspar@gmail.com

Tel: +35 19 62 54 12 19



Pedro Joao Soares Gaspar completed his thesis in UPC-Barcelona Tech's Multimedia Engineering doctoral program.