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ORIGINAL ARTICLE

Postdoctoral strategy as continuous professional development at the University of Medical Sciences of Villa Clara

Estrategia posdoctoral como superación continua en la Universidad de Ciencias Médicas de Villa Clara

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ABSTRACT

Background: postdoctoral continuing education is a process that increases the visibility of the training institution and the prestige of its professionals.

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Objective: to develop a strategy for postdoctoral continuing education that prioritizes the training and qualification of human capital and fosters the training of new doctors of science who provide the best health services.

Methods: a qualitative research study was conducted (September 2024–July 2025) at the University of Medical Sciences of Villa Clara. The universe consisted of 101 doctors of science who made up the full body of doctors in Villa Clara province. Forty-six doctors with more than 10 years since graduation were selected, and from them 11 were chosen according to inclusion criteria, along with six key informants. Theoretical and empirical methods were used. The research was conducted in three phases: diagnosis, strategy design, and assessment by specialists.

Results: the results of the first phase provided the main continuing education needs, an individual and collective characterization, as well as the prioritization of urgent areas for improvement that could be addressed in the long term. The second phase concluded with the design of the postdoctoral strategy, which was assessed in the third phase by specialists; most rated its indicators at values of four and five; the comments focused on the feasibility and relevance of implementation.

Conclusions: a postdoctoral continuing education strategy was developed for the training of human capital and the training of new doctors. It was assessed as relevant, feasible, and accepted by the specialists consulted.

MeSH: education, professional; strategies; capacitation; learning; education, medical

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RESUMEN

Fundamento: la superación posdoctoral es un proceso que aumenta la visibilidad de la institución formadora y el prestigio de sus profesionales.

Objetivo: desarrollar una estrategia para la superación posdoctoral que privilegie la capacitación y calificación del capital humano, y propicie formar nuevos doctores en ciencias que ofrezcan los mejores servicios de salud.

Métodos: se realizó una investigación cualitativa (septiembre 2024-julio 2025) en la Universidad de Ciencias Médicas de Villa Clara. El universo estuvo constituido por 101 doctores en ciencias que conformaban el pleno de doctores de la provincia villaclareña. Se seleccionaron 46 doctores con más de 10 años de titulados y de ellos se escogieron 11

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según criterios de inclusión, y seis informantes clave. Fueron empleados métodos teóricos y empíricos. La investigación se realizó en tres fases: diagnóstico, diseño de la estrategia y valoración por especialistas.

Resultados: los resultados de la primera fase aportaron las necesidades principales de superación, una caracterización individual y colectiva, así como la priorización de áreas de mejora urgentes, que pudieran trabajarse a largo plazo. La segunda fase concluyó con el diseño de la estrategia posdoctoral que fue valorada en la tercera fase por especialistas, la mayoría ponderaron sus indicadores en valores de cuatro y cinco; los señalamientos estuvieron centrados en la factibilidad y pertinencia de la implementación.

Conclusiones: se desarrolló una estrategia de superación posdoctoral para la capacitación del capital humano y formación de nuevos doctores. Fue valorada como pertinente, factible y aceptada por los especialistas consultados.

DeCS: professional education; strategies; training; learning; medical education

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INTRODUCTION

In the global context of higher education, it is recognized that doctoral continuing education for professionals with capacities for scientific research is a fundamental task and a priority for universities, due to its contribution to the progress and development of society in social, cultural, and economic terms. It is a process of vital importance in all analyses: it increases the visibility of the university, the prestige of its professionals, and of university faculty in general.[(1)]

The Sustainable Development Goals in the 2030 Agenda recognize that quality education is the basis for improving people's lives and the sustainable development of society; reasons

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present in Cuban education as a platform for achieving that goal, to which higher education institutions are committed.[2]

The constant improvement of the population's quality of life constitutes one of the primary objectives of the Cuban State. Even amid adverse circumstances, the country has deployed for decades a public health policy that is universal, free, and absolutely inclusive, which makes it possible to ensure control of the continuous development of scientific and technical activities, especially those aimed at scientific research, where the training of professionals at the highest level within the national health system plays an important role.

To this end, Law 41[3] states that the Ministry of Public Health (Minsap) is responsible for the methodological, technical, and scientific stewardship of the sector, as well as the organization and provision of services to society, and it implements what is set forth in the Constitution of the Republic of Cuba. In this environment, the constant preparation of professionals in the sector must be continuous and has become a priority of the highest health body in Cuba.

The development of human capital in the health sector reaches a greater dimension by requiring contextualized and permanent postgraduate education that makes it possible to find timely responses to health problems, and among its objectives are the continuous and systematic upgrading of professionals and the development of skills and abilities. This is the path to acquiring competencies in care, teaching, and research services, and therefore adequate implementation as a strategy is necessary in Cuban medical universities.[4]

Each province has a medical university responsible for training the necessary human capital in its territory, based on a national strategy aimed at achieving a high percentage of faculty with the scientific degree of doctor of science in a given specialty. At the same time, the insertion of universities into national and international research projects is promoted, together with different organizations.[1]

In correspondence with the above, the University of Medical Sciences of Villa Clara assumes, plans, and projects the continuing education system according to local development needs;

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for this, the institution requires increasing its competencies to guarantee the quality of medical care, teaching, science, and innovation; furthermore, it focuses its attention on obtaining scientific results that have an impact due to their quality, are competitive with international standards, increase university visibility, and make it possible to correctly guide the training process of new doctors of science.

In a global context where the speed of scientific evidence in health stands out, with precision medicine, new technologies, artificial intelligence, and the risk of knowledge obsolescence, the authors set as their objective: to develop a strategy for postdoctoral continuing education that prioritizes the training and qualification of human capital and fosters the training of new doctors of science who provide the best health services.

METHODS

A qualitative research study was conducted in 2024–July 2025 at the University of Medical Sciences of Villa Clara. The universe consisted of the 101 doctors of science who, during the information collection period, made up the total in Villa Clara. The 46 with more than 10 years since graduation were selected, and from them 11 (25%) were chosen based on meeting at least one of the following criteria:

- Active participation in the doctoral training process (tutoring, degree committees, attendance at plenary sessions and doctoral meetings, etc.)
- Members of the Institutional Degree Commission or Doctoral Committee
- Faculty of the doctoral programs

Theoretical-level methods were used:

- Analytical-synthetic: for the study, analysis, and interpretation of the information obtained through the reviewed documentation. It made it possible to determine the current and desired situation regarding the continuing education of doctors of science, make generalizations, synthesize the information from the applied

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instruments and the reviewed bibliography, and arrive at the conception of the strategy.

- Inductive-deductive: to discern and deepen both theoretical and practical knowledge of postdoctoral continuing education, its principles and relationships, as well as to define the necessary design of the strategy.
- Systems approach and modeling: facilitated the establishment of the stages, the elaboration of the strategy's actions, and its final configuration.

Empirical methods in each phase of the research:

Phase I. Diagnosis of the current situation. Contextual analysis

Objective: to identify continuing education needs as well as individual and collective strengths, weaknesses, and gaps, and the analysis of the environment in postdoctoral continuing education.

- Documentary analysis: Minutes of the degree commission and plenary sessions of doctors (2020 to 2024), Doctoral Continuing Education Strategy at the University of Medical Sciences of Villa Clara, 2021–2025, postdoctoral continuing education strategies and programs of other universities in the country. Analysis of the institution's priority research lines. Current trends in the area of specialization of doctors of science.
- Semi-structured interview with doctors of science and key informants: made it possible to determine the current situation of postdoctoral continuing education in Villa Clara and the information, knowledge, and scientific updating needs of doctors of science, the training experience, and the identification of opportunities for collaboration with other institutions or research centers.
- Methodological triangulation: made it possible to verify the strengths and weaknesses regarding postdoctoral continuing education based on the methods used.

Phase II. Strategy design

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Objective: to elaborate a structured, coherent, and personalized action plan (formative dimensions and organizational forms) to close the gaps detected in the diagnosis. Timeline.

Participatory techniques:

- Focus group: composed of five doctors of science and five key informants from the initial sample, to whom the results of the diagnosis carried out were presented, along with a proposal of actions and topics to include in the strategy.
- Nominal group: three doctors of science with 12 or more years of experience in teaching courses and other forms of continuing education and two key informants from the initial sample were selected in order to reach a consensus on the final design of the strategy.

Phase III. Assessment
Objective: to assess the proposal by specialist criteria and make the necessary adjustments.

A total of five specialists with more than 15 years since graduating as doctors of science were consulted. The indicators analyzed were: relevance, internal coherence, feasibility, originality, and clarity. Instrument: Likert scale 1–5

RESULTS AND DISCUSSION

The results of the first phase provided the main continuing education needs, an individual and collective characterization, as well as the prioritization of urgent and important areas for improvement and those that could be addressed in the long term.

Documentary analysis:

- The National Health System has a consolidated structure in which medical sciences universities play a leading role in the training of their human capital at the undergraduate and postgraduate levels with a focus on continuous continuing

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education, including scientific degrees. The political will to favor this training is evident.

- There is a scientific policy adjusted to the needs of the territories and a strengthened science and innovation system.
- The reviewed minutes of the degree commission showed little treatment of the topic of continuing education and few concrete agreements to address this problem.
- Insufficient plenary sessions of doctors held; in all cases, participants advocate the need to satisfy a series of scientific, methodological, and updating training needs in the area of specialization of doctors of science.
- Nonexistence of specific postdoctoral continuing education strategies and programs; only actions derived from the institutional doctoral training strategy are evident.

Semi-structured interview:

- Insufficient command of scientific English.
- Scientific productivity is not homogeneous among doctors of science.
- Scientific groups that respond to doctoral research lines do not always function systematically, nor are they properly articulated from the undergraduate level.
- Not all interviewees report having optimal capacities for conducting the training process of new doctors of science.
- Little experience in international projects.
- Increased national and foreign interinstitutional collaboration is required, as well as collaboration in academic networks.
- Updating consistent with the scientific development of the research lines of the two institutional doctoral programs is needed.
- Systematize the continuous improvement of the quality of doctoral training.

Methodological triangulation. Strengths:

- Political will is evident in health authorities to favor doctoral training and the postdoctoral development of their human capital.

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- There are research lines defined according to the needs of the territory, materialized in research projects at different levels.

Weaknesses:

- Low scientific productivity.
- Few international projects.
- Difficulties with capacities in conducting the training process of new doctors of science.
- Insufficient systematicity in updating consistent with trends in the area of specialization of doctors of science.
- Nonexistence of a postdoctoral continuing education system in accordance with individual and environmental needs.

The second phase resulted in the design of the Postdoctoral Strategy for Continuous Professional Development at the University of Medical Sciences of Villa Clara.

To this end, the focus group was presented with the diagnosis carried out and, in correspondence with it, a proposal of actions for the design of the strategy focused on five dimensions: research, management, training, visibility, and impact. The results were taken to the nominal group, which agreed with the dimensions and their actions; the suggestions focused on the organizational forms of the training sessions and preparation for carrying out international projects.

Finally, the strategy was formed, whose process is shown in Figure 1.

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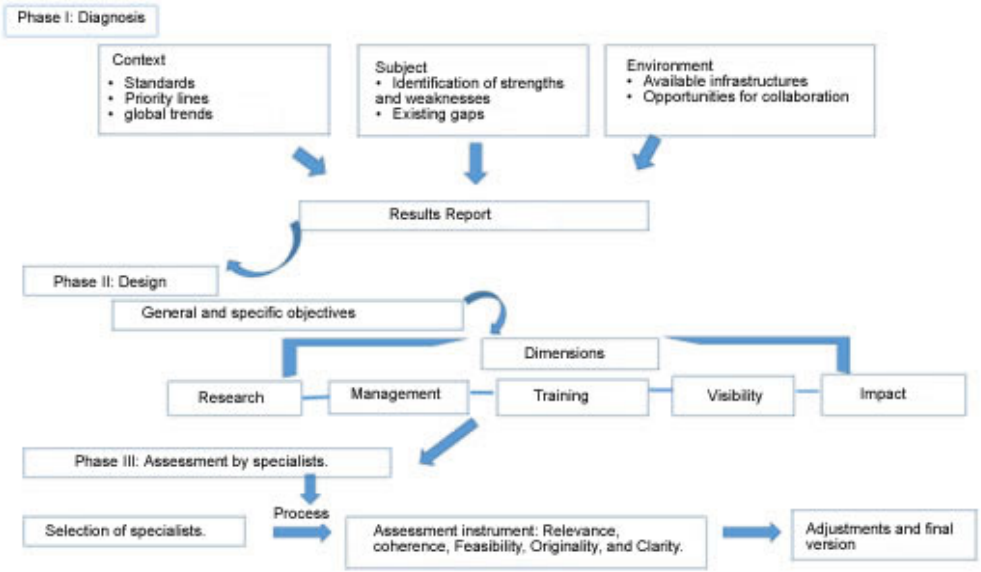


Fig. 1. Postdoctoral strategy for continuing professional development at the University of Medical Sciences of Villa Clara
Source: own elaboration.

The strategy is based on the Strategic Projection of the University of Medical Sciences of Villa Clara.

Strategic objectives:

Objective 1. Consolidate postgraduate training strategies.
Objective 2. Increase the impact of research and innovations on the health status of the population of Villa Clara.

In correspondence with these, the mission, vision, and general and specific objectives are stated.

Mission
To systematize postgraduate training that makes it possible to generate new knowledge and develop the competencies necessary to carry out novel research that contributes to the

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development of the health system in Villa Clara and to improving the population's quality of life.

Vision
To be a leading university in postgraduate training, with a significant impact of its scientific production on solving health problems and improving the population's quality of life.

General objective: to train professionals with the scientific degree of doctor of science in order to systematize high qualification and knowledge that allow them to train new doctors and offer the best services in the National Health System to the people of Villa Clara.

Specific objectives:

- To carry out a diagnosis of the scientific-methodological updating needs of the full body of doctors of science in Villa Clara.
- To develop advanced skills in the different aspects of biomedical research.
- To increase the scientific productivity of the doctors of science of the university institution.
- To acquire competencies in teaching and scientific communication.
- To develop capacities in conducting the training process of new doctors of science.
- To foster interdisciplinary collaboration with other researchers and university institutions in the territory.
- To increase the scientific development of the 11 research lines of the two doctoral programs authorized by the national body.
- To ensure continuous improvement of the quality of training.

The results of the third phase were satisfactory: the specialists rated the strategy highly, between four and five on the Likert scale; the comments and suggestions were related to the feasibility of its implementation and the possibility of scholarships or training placements at other national or international institutions.

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There is consensus among the authors on addressing postdoctoral continuing education through a project based on its needs. A study[1] conducted at the University of Matanzas highlights the high level of novelty of this type of project and its connection with strategic areas for the country's development, which is why researchers should become involved in this task.

The authors assume that the postdoctoral continuing education process does not end with obtaining a doctorate in science; rather, it is a continuous process that leads to increasing the quality of researchers, which has an impact on all substantive university processes, while at the same time allowing administrators to make decisions about the researchers available to them.[1]

Postdoctoral actions are flexible postgraduate activities that can be adjusted to the work dynamics of doctors of science in different areas of knowledge, and they contribute to the continuity of their continuing education, the results of which are reflected in their work and scientific performance. These actions make it possible for the postdoctoral fellow to increase scientific productivity and visibility through publications of articles in serial journals and presentations at scientific events, which raises their professional prestige and their scientific work. Postdoctoral activities foster systematic and collaborative projection for future work, as a legacy that enriches the scientific wealth in the area of knowledge in which they develop.[4,5]

The results presented in this work strengthen the necessary elaboration of a postdoctoral continuing education program or strategy that responds to the training interests of doctors of science, which will contribute to better performance and action in the context in which they work.

Postdoctoral continuing education is developing worldwide along lines with different degrees of development. At the University of Medical Sciences of Sancti Spíritus,[6] these lines have been conceptualized, first, through the continuous self-preparation of doctors of science, carried out through participation in or direction of research projects, participation in

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seminars, workshops, events, and other forms of socialization of scientific results that allow exchange and professional development.

A second path used has been the preparation of seminars, workshops, and courses aimed at candidates, with the aim of raising their scientific level, fostering constant updating, and guaranteeing doctors, especially younger ones, a necessary space for exchange and development. In this direction, one prioritized line has been the training of doctors as tutors.[6] The University of Medical Sciences of Villa Clara shares these paths as an effective form of postdoctoral continuing education.

This research agrees with Pestana Llerena[7] in stating that postdoctoral training increases the assimilation of knowledge, the professional's values as an example before society, their work colleagues, and their students.

For their part, Sarría Stuar *et al*.[8] stated that, based on the strategic objectives of the Ministry of Higher Education in Cuba, it is necessary to increase the impact of universities and science, technology, and innovation entities in strategic sectors for economic and social development. To achieve this purpose, it is important to prioritize attention to the training of human capital in university institutions. Currently, following these maxims, the effort developed in the training of doctors has been significant; however, neglect of postdoctoral continuing education is noted, which is considered very important for a higher education institution or employing body.

According to Concepción Toledo *et al*.,[9] it is a requirement in postdoctoral continuing education that the research developed have practical application in the short, medium, or long term, and it is extremely effective for the genesis of the research work to be a real demand of production.

One of the main standards of university excellence is related to the percentage of doctors of science on the faculty. These professionals must demonstrate the ability to develop research with a high degree of independence. In this sense, the University of Medical Sciences of Santiago de Cuba has developed a set of postgraduate training processes (specialization,

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master's, and doctorate) with high professional competence and capacities for professional practice and for cognitive preparation, research, and innovation, among which specialization and master's degrees stand out, followed to a lesser extent by doctorates, and post doctorates are very scarce.[10]

It can be perceived that training institutions do not always prioritize postdoctoral continuing education with the immediacy and relevance it needs, and some do not have a consolidated postdoctoral continuing education strategy.

The quality of the postdoctoral experience is everyone's responsibility. Doctoral training is an essential component for sustaining the country's scientific potential, especially that of universities, which is why for the Ministry of Higher Education the strengthening of the training of doctors of science is a priority.[11]

Scientific contribution

The proposal of a postdoctoral continuing education strategy scientifically establishes the guidelines required to systematize and update the preparation of these professionals, which will make it possible to generate new knowledge and develop the capacities necessary to contribute to the development of the Cuban health system and to improving care and the population's quality of life.

CONCLUSIONS

A postdoctoral strategy was designed with the objective of developing a continuing education program at the University of Medical Sciences of Villa Clara aimed at doctors of science. The specialists rated the proposal highly, so it was accepted by consensus. Their comments were taken into account in making decisions regarding its feasibility of implementation and the need for exchanges with international institutions.

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Declaration of interests

The authors declare that they have no conflicts of interest.

Authors' contributions

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