






PEDAGOGICAL ARTICLE

System of actions aimed to the teaching process in epidemiological contingencies: experience in Guantánamo

Sistema de acciones dirigido al proceso docente en contingencias epidemiológicas: experiencia en Guantánamo

Sistema de ações voltadas ao processo de ensino em contingências epidemiológicas: experiência em Guantánamo

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ABSTRACT

Introduction: the past epidemiological contingency caused by SARS-CoV-2 represented a serious health situation that impacted all spheres of life with negative consequences, including education. **Objective:** propose a system of actions designed to guarantee the academic results of the final year of the Medicine degree (2020-2021 academic year) during the outbreak of COVID-19 as a methodological proposal in the face of epidemiological contingencies. **Method:** we started from the results of a participatory action research as a previous qualitative study, used as a mechanism to generate ideas and as the main method of data collection, where, through intentional sampling modalities, key informants were selected among students and teachers to whom that participant observation and the previously conceived active open interview were applied as techniques. The data obtained in the field work were exhaustively

analyzed and coded. The preparation of the final report allowed the design of the actions. **Results:** the implementation of the designed system of actions, supported by the regulatory documents, allowed the decentralization of the 6th. year of the Medicine degree towards their municipalities of residence, with guarantees for the strengthening of knowledge and skills, confirmed by the results obtained in the state exams. **Conclusions:** a system of actions is presented that effectively contributed to systematizing knowledge and skills by students during the 2020-2021 academic year, demonstrated by their academic results, which supports its relevance in epidemiological contingencies.

Keywords: actions; contingency; teaching process; COVID-19



RESUMEN

Introducción: la pasada contingencia epidemiológica causada por el SARS-CoV-2, representó una grave situación sanitaria que impactó todas las esferas de la vida con consecuencias negativas, incluida la educación.

Objetivo: proponer un sistema de acciones diseñado para garantizar los resultados académicos del año terminal de la carrera de Medicina (curso 2020-2021) durante el rebrote de COVID-19 como propuesta metodológica ante contingencias epidemiológicas. **Método:** se partió de los resultados de una Investigación-acción participativa como estudio cualitativo previo, utilizada como mecanismo para generar ideas y como método principal de recolección de datos, donde, mediante modalidades de muestreo intencional fueron seleccionados informantes clave entre estudiantes y docentes a los que le fueron aplicadas como técnicas la observación participante y la entrevista abierta activa previamente concebida. Los datos obtenidos en el trabajo de campo, fueron exhaustivamente analizados, codificados. La confección del informe final permitió el diseño de las acciones. **Resultados:** la puesta en marcha del sistema de acciones diseñado, amparada por los documentos normativos, permitió efectuar la descentralización del 6to. año de la carrera de Medicina hacia sus municipios de residencia, con garantías para el afianzamiento de conocimientos y habilidades, confirmado por los resultados obtenidos en los exámenes estatales. **Conclusiones:** se propone la utilización, como herramienta metodológica, del sistema de acciones, el cual contribuyó de manera eficaz a sistematizar conocimientos y habilidades por los estudiantes durante el curso 2020-2021, demostrado por sus resultados académicos, lo cual avala su pertinencia en contingencias epidemiológicas.

Palabras clave: acciones; contingencia; proceso docente; COVID-19

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RESUMO

Introdução: a contingência epidemiológica passada causada pelo SARS-CoV-2 representou uma grave situação de saúde que impactou todas as esferas da vida com consequências negativas, incluindo a educação. **Objetivo:** propor um sistema de ações destinadas a garantir os resultados acadêmicos do último ano do curso de Medicina (ano letivo 2020-2021) durante o surto de COVID-19 como proposta metodológica diante das contingências epidemiológicas. **Método:** partimos dos resultados de uma pesquisa-ação participante como um estudo qualitativo prévio, utilizado como mecanismo de geração de ideias e como principal método de coleta de dados, onde, por meio de modalidades de amostragem intencional, foram selecionados informantes-chave entre alunos e professores para a quem foram aplicadas como técnicas a observação participante e a entrevista aberta ativa previamente concebida. Os dados obtidos no trabalho de campo foram exhaustivamente analisados e codificados. A elaboração do relatório final permitiu o desenho das ações. **Resultados:** a implementação do sistema de ações desenhado, apoiado nos documentos normativos, permitiu a descentralização do 6º. ano do curso de Medicina para os seus municípios de residência, com garantias de fortalecimento de conhecimentos e competências, confirmadas pelos resultados obtidos nos exames estaduais. **Conclusões:** apresenta-se um sistema de ações que contribuiu efetivamente para a sistematização de conhecimentos e competências dos estudantes durante o ano letivo 2020-2021, demonstrado pelos seus resultados acadêmicos, o que sustenta a sua relevância em contingências epidemiológicas.

Palavras-chave: ações; contingência; processo de ensino; COVID 19



INTRODUCTION

The epidemiological contingency caused by SARS-CoV-2, since its onset in December 2019, resulted in a severe acute respiratory infection that transformed the global health situation, impacting all spheres of life and with negative consequences including education. Since March 11, 2020, when the WHO declared as a global pandemic the disease caused by the SARS-CoV-2 coronavirus (Severe Acute Respiratory Syndrome), which causes the disease called COVID-19, the history of mankind has undergone a radical change^(1,2) because of its worrying effects, not only on health and economy, but also because of its consequences in each of the spheres of human development, including education.⁽³⁾

The existing inequality in countries worldwide prevented the development of a single strategy for the preservation and/or continuity of educational activities. Researchers such as Gajardo⁽⁴⁾ and Ortega⁽⁵⁾ believe that this disease exposed in each region the lack of study spaces, digital tools, internet access and other related elements, so that the need of all students to develop their learning process in a digital environment was not satisfied: this opinion is shared by the authors of this study. On the other hand, both actors of the educational teaching process (students and teachers), were equally affected not only by the mandatory suspension of classes, but also by the confinement and the psychological aspects related to the impact of the disease on family and community.⁽⁶⁾

Cuba did not escape this reality, which conditioned that universities throughout the country needed to implement various strategies by managers, teachers and students, and adapting them to the conditions of each territory to promote the closing, beginning and continuity of a school year with quality. A school course where students could acquire the knowledge and skills necessary for the integral performance of their profession,⁽⁷⁾ as foreseen in their curriculum and under the legal and methodological protection of various regulations issued by both the Ministry of Public Health (Minsap) and the National Directorate of Teaching, designed to facilitate their implementation according to the characteristics and situation in each territory.⁽⁸⁾

It was from this perspective that universities had to adapt to the context of the pandemic,⁽⁹⁾ which forced teachers and administrators to rethink the ways in which students learn, transform pedagogical practices and teaching strategies⁽¹⁰⁾ and even to redefine their role⁽¹¹⁾ and anticipate the vision of normality.

Authors such as Cisneros Domínguez,⁽¹²⁾ for example, made early incursions into actions to be developed with a view to the recuperative phase of the epidemiological contingency of reference, based on the self-preparation of students in different theoretical contents and in the development of skills derived from the basic curriculum, intimately linked to health problems. These ideas helped to build the foundations that supported the Guantánamo province's own strategy with emphasis on the terminal years, as is the case of the 6th year of the Medicine course. However, the following question arose: What actions should make up a system so that it could contribute to the preparation of terminal year students to face the end-of-studies exercises in epidemiological contingency?



It is undeniable that the closing of the 2020-2021 school year and the planning of the 2021-2022 school year in the Faculty of Medical Sciences of Guantánamo demanded a deep methodological work to answer this question. It was this methodological work that allowed making the necessary adjustments in each subject, from the flexibility of the curriculum and the enhancement of the quality of the processes, but with maximum respect for the basic curriculum.⁽⁷⁾ This allowed the students of terminal years, most of them present in the fight against COVID-19, to acquire the best integrated experiences for the approach to the profession, and ensured that the Teaching and Educational Process (PDE) did not stop, so that in July 2021, students of terminal years of all careers in the Faculty of Medical Sciences completed the 2020-2021 course, among them, the students of the 6th year of the Medicine career. This also occurred (from their own strategies) in other provinces of the country.^(13,14)

During this period marked by the negative impact of this serious disease known as COVID-19, national and foreign authors focused their research on the way in which the teaching-learning process had to be carried out. However, specifically related to the preparation of terminal years to face the end-of-studies exercises, there were scarce results in the search carried out. Therefore, the objective of the present work is to propose a system of actions that will allow the achievement referred to.

METHOD

We started from the results provided by the final report of a previous qualitative study, which allowed us to know the inner workings of the teaching process in the municipalities that belong to the Faculty of Medical Sciences of Guantánamo, but from the direct vision of those involved. This technique has been used by different educational researchers.^(6,15) An initial participative action-research was carried out, which constituted the main method of data collection and, at the same time, served as a mechanism to generate ideas; this allowed obtaining the necessary knowledge for the design of the actions.

Through intentional sampling, key informants were selected from among students and teachers, forming a small sample according to the researchers' requirements. The techniques applied were participant observation and the previously conceived active open interview. The data obtained in the fieldwork were analyzed exhaustively, which allowed, by organizing them into patterns and categories, to know their tendencies, contrast and compare them through the use of theoretical methods and validate them by means of triangulation.

The preparation of the final report allowed characterizing the teaching process in each scenario previously accredited for teaching. Based on these results, the actions that made up the system were designed, which, once approved, was implemented in each of these scenarios in the ten municipalities that belong to the Faculty of Medical Sciences of Guantánamo.



RESULTS

As it will be understood, the previous field work favored critical reflection and awareness on the part of teachers and students, the interpretation by the researchers of their testimonies and narratives contributed to unravel the reality in each teaching scenario. Subsequently, a tour was conducted by teaching managers and researchers, which made it possible to recertify the scenarios ready to develop teaching. Based on these analyses, the following system of actions was designed (Table 1). **Table 1 System of actions that enhanced the successful completion of the educational teaching process in the 6th year of the medical career Faculty of Medical Sciences. Guantánamo, Course 2020-2021**

Actions	Activities
Preparation of the conditions for insertion.	Schedule of meetings with the University Student Federation, virtual meetings with the faculty of the Faculty of Medical Sciences of Guantánamo and the municipalities.
Preparation of the scenarios and decentralization of the Guantánamo Faculty of Medical Sciences internship to the ten municipalities.	Visit of the faculty management body and methodologists to all the municipalities. Establishment of monitoring.
	Completion of the scenarios with human resources and redistribution of resources for teaching in relation to the skills to be systematized in the cases that require it.
	Virtual preparation workshops according to planning for GBT teachers and medical facilitators on the five internship programs.
	Face-to-face meetings of the main professors with the teachers of the municipalities according to the schedule, for personalized counseling.
Curricular adjustment in time and content in accordance with Ministerial Resolution 132/2020 and organization of rotations by municipalities.	After analysis of contents and skills, MGI, Internal Medicine, Pediatrics, Gynecology-Obstetrics and General Surgery experienced a reduction in the number of weeks.
	MGI Rotation: Six-week stay in CMFs with conditions for teaching. Office-based physician as training mentor. Emphasis on knowledge and skills. SAT according to the program of the subject adjusted under the guidance of the teacher previously designated according to the work plan. Fulfillment of the medical on-call planning in the on-call corps of the polyclinics. Examination in week six with the corresponding modality taking into account the epidemiological phase in force in the province, as well as the autochthonous transmission if it were to be declared.
	Internal Medicine and Pediatrics rotations: Use CMF, hospitalization wards of Pediatrics, Internal Medicine, Intensive Care, vaccination and nursing homes available in the municipalities. Use on-call corps and observation rooms in function of medical on-call as a modality of Education at Work. Use the CMFs for scheduled inter-consultations, with the presence of clinicians and pediatricians. Organize them without overcrowding. Four-week rotations in wards and other services and three weeks in interconsultation with professors (avoid overcrowding of students). Perform the SATs foreseen in the syllabus, according to the adjustments made, led by clinicians, pediatricians or licensed MGI specialists. End of rotation exam in week eight, in the corresponding modality, taking into account the epidemiological phase in force in the province.
	Obstetrics-Gynecology Rotation: Arrange the rotation for two weeks in maternal homes, two weeks of direct work with obstetricians in the CMFs during Interconsultation and one week of rotation by delivery room. Use CMFs, maternity homes, Menstrual Regulation service, hospital wards (some municipalities) and polyclinic on-call corps. If there are no maternity homes in the municipality, the rotation will be linked to the obstetrician of the GBT and to related services such as menstrual regulation. Carry out (prior design and planning) a seven-day stay from Monday to Saturday, full time, in the delivery room of the General Teaching Hospital "Dr. Agostinho Neto" for the



	<p>systematization of the skill of delivery care in order to guarantee the fulfillment of this skill by all interns.</p> <p>Carry out the weekly SATs foreseen in the study program and according to the adjustments made, directed by the obstetricians and in their absence authorized MGI specialists.</p> <p>End of rotation examination in week six in the corresponding modality, taking into account the epidemiological phase in force in the province. In the phase of autochthonous transmission, stop the hospital rotation until the conditions allow it and keep the students in the previous rotation.</p>
	<p>General Surgery Rotation:</p> <p>The rotation will be constituted by three weeks of rotation in the scenarios of the municipality, and two weeks in the Surgery service of the hospital.</p> <p>Select a specialist in MGI as facilitator for the control of the teaching process of this subject in each municipality.</p> <p>To use as main scenarios the CMFs, Guard Corps, Cure and Injections services and Heberprot consultation, fulfilling the skills that can be performed in these scenarios.</p> <p>To design and plan a system of two-week rotations at the "Dr. Agostinho Neto" General Teaching Hospital and the designation of a basic work team, in charge of emphasizing knowledge and skills that are more difficult to acquire, and to provide differentiated attention to these interns while they rotate through the service.</p> <p>To perform the TSS foreseen in the study program and according to the adjustments made during the rotation in the Surgery Service.</p> <p>End of rotation examination in week six in the corresponding modality, taking into account the epidemiological phase in force in the province. In the phase of autochthonous transmission, stop the hospital rotation until the conditions allow it and keep the students in the previous rotation.</p>
Organization and implementation of the evaluation period.	<p>Guidance, reading and analysis of the guiding documents of the evaluation process with emphasis on Ministerial Resolution 132/2020 in its corresponding section, requiring strict compliance with the indicators related thereto.</p> <p>Adequate disclosure of the stage.</p>
	<p>Preparation of the tribunals for the Internship in its two modalities: (vertical and rotating) designating the president with a minimum superior teaching category of Assistant Professor.</p> <p>Mechanisms for dean's approval and certification.</p> <p>Virtual methodological activities.</p>
	<p>Distribution of students by court, allowing physical distancing measures in the services.</p> <p>Insertion of interns from the municipalities at the time of their rotation in the Gynecobstetrics and Surgery services.</p>
	Theoretical-Practical Oral Exam.
	Analysis of the results.
Comprehensive evaluation of compliance with the actions.	Weekly, starting from the use of all available mechanisms created for this purpose, and at the end of the academic year.

MGI: General Comprehensive Medicine; CMF: Family Physician's Office; SAT: Therapeutic Update Seminars; GBT: Basic Work Group.

Source: Own elaboration.

Understanding the end-of-studies evaluation as a set of operations, with the objective of determining and assessing the achievements reached in the learning process by the students, in relation to the objectives present in the study programs and knowing that it is oriented to the verification of the mastery of the contents that ensure the quality and efficiency of the graduate's professional performance⁽¹⁶⁾, the results obtained by the students can be considered commendable and validate by themselves the proposed system of actions. They are shown in (Table 2).



Table 2 Promotion results of the 6th year of the medical career

Behavior of the state exams. First call (First moment July 2021)														
Careers and programs	Submitted to date (cumulative)				Results of those presented				Pending to be examined				EE Culmination of the first moment	
	Cubans		Foreign		Cubans		Foreign		Cubans		Foreign		Yes	No
	No	%/inscripción	No	%/inscripción	Approved	%/presented	Approved	%/presented	Oct-21	Dic-21	Oct-21	Dic-21		
Day Course														
Medicine	559	91,94	1	100	558	99,82	1	100	41	8	0	0	x	

Source: Promotion Report Teaching Secretariat.

DISCUSSION

According to authors of the territory, in the University of Medical Sciences of Guantánamo, the undergraduate formative process during the confrontation to the past epidemiological contingency given by the COVID-19 was sustained in basic pillars, of which, the realization of curricular adjustments in the careers and the incorporation of students and professors to the active research, were the two fundamental pillars.⁽¹⁷⁾

The final years of the careers constituted an element towards which multiple methodological strategies were directed, in order to enhance their knowledge and skills, from the institutional vision about their future as professionals, and the need to ensure the quality of their learning according to current educational policies in the country.⁽¹⁸⁾

Even the implementation of the national adjustments for the completion and beginning of the courses 2020-2021 and 2021-2022, was modified to take advantage of its flexibility, in order to maintain the quality of training.⁽⁸⁾ Hence, the need for the research-action carried out, whose final report was the genesis of the system of actions applied to the 6th year of the Medicine course, conceived from the need to prioritize decentralization rather than concentration for the implicit reasons.

This report made it possible to know:

- Willingness of teachers to assume the task and of students for its decentralization.
- Description of each of the accredited teaching scenarios, their structural characteristics, equipment, services by basic functional specialties, human resources and their training, categorization, experience and number.
- Composition and completion of the Basic Work Groups (GBT) and the regularity of their actions.
- Actual enrollment of students per municipality and their personalization in relation to the scenarios (accessibility, number, possibilities of keeping hygienic-epidemiological measures).
- Temporary absences of teachers and/or students due to different affectations.



It is important to highlight that, in order to guarantee the quality of the proposed actions, the teaching activities were guaranteed in the scenarios of each municipality by the professors of the GBTs: clinicians, pediatricians, obstetricians, general practitioners (MGI) in function or qualified in the basic specialties, all with teaching experience, (including Principal Professors and teachers of the clinical area who gave their support, by sacrificing their hours of rest).

Different forms of teaching organization were developed in order to achieve better understanding and systematization of knowledge, with the advice of the Principal Professors of the subjects. As an element to be emphasized, it is worth mentioning the previous teaching of workshops to prepare the faculty for the student accompaniment, where they dealt with the use of digital bibliography (whose basic and complementary texts were given to each intern) and the management of the psychological aspects of the students, so that the details of the differentiated attention contributed to the strengthening of the necessary skills to interact with their own characteristics and with those of a professional environment that is becoming more complex every day.

The location of the interns was based on their place of residence, the number of accredited teaching scenarios available in the municipality, the conditions of the GBTs for teaching and the possibility of respecting the physical distance rules.

Regarding the tasks related to tutoring and accompanying students in the municipalities, the teaching staff, after analyzing the formative evaluations and the student path, directed and perfected the necessary tasks to respond to the corresponding action, which allowed the achievement of superior results in promotion at the end of the evaluation period.

Similar results were obtained by researchers of the Manuel "Piti" Fajardo Medical Sciences Branch, in San Cristóbal province of Pinar del Río, who carried out a strategic planning to optimize the academic results of this terminal year from their permanence in the teaching scenarios.⁽¹⁹⁾

In the province of Santi Spíritus Cuba, Castro-Gutiérrez, et al.⁽²⁰⁾ found magnificent results of promotion, in an investigation carried out in 2020 in the career of Stomatology with postgraduate students decentralized to their municipalities in times of pandemic, but they attributed it to the fact that the students, when they kept working in the care of stomatological emergencies, managed to strengthen the acquired skills, with more than 75 % expired at the time of the suspension of teaching activities.

It is known by all that the education at work generated in the act of research and the incorporation of students to the assistance tasks are advantages of the integral formation of Cuban health professionals, and constitute opportunities for medical education in its battle against COVID-19⁽²¹⁾ and, according to the authors, against any epidemiological contingency where it is necessary to continue the teaching-educational process.



The 6th year medical students in Guantánamo had similar opportunities, when converting polyclinics and field hospitals into scenarios for the strengthening and systematization of knowledge and skills through on-the-job education, enhanced by the actions of the proposed system. This is related to several statements by Saavedra Bautista, et al.⁽²²⁾ related to the current roles of the university, who defend the criterion that the identification of social challenges in universities cannot be their only task, but also their capacity to face them. The Faculty of Medical Sciences of Guantánamo, whose firm steps have begun with the design and impact of the presented system of actions, is moving towards this desired state.

CONCLUSIONS

It is proposed the use, as a methodological tool, of a system of actions that contributed effectively to systematize knowledge and skills by students during the course 2020-2021, (period of pandemic by COVID-19), demonstrated by its academic results, which supports its relevance in epidemiological contingencies. The tasks that conform it; had the necessary methodological requirements to contribute to the solution of the difficulties generated by the contingency and contributed to the academic results obtained in the end-of-studies exams.

RECOMMENDATIONS

Generalize the applicability of the system of actions in similar environments involved in the teaching-educational process in case of epidemiological contingencies.

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