

The Impact of the COVID-19 Pandemic on the Intensive Care Residency Program in Portugal

Impacto da Pandemia COVID-19 na Formação Especializada do Internato Médico de Medicina Intensiva em Portugal



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ABSTRACT

Introduction: In 2020, critical care departments underwent profound changes imposed by the COVID-19 pandemic. The aim of this study was to evaluate the impact of the pandemic on the intensive care residency program in Portugal.

Material and Methods: The Association of Critical Care Residents (AIMINT) prepared a questionnaire using the Google Forms[®] tool, which was applied during August 2020 to the Critical Care residents in Portugal. A descriptive analysis was performed with the data collected.

Results: Eighty-five residents participated in the questionnaire, yielding a response rate of 62%. Three-quarters of all participants provided care to COVID-19 patients. More than 80% of the surveyed participants were on rotations, and these were canceled in 59% of cases. Seventy-eight percent reported a workload greater than 40 hours per week.

Conclusion: The COVID-19 pandemic had an impact on the Critical Care Residency program in Portugal. Most residents surveyed provided care to COVID-19 patients and not only saw their rotations suspended but also experienced difficulties in rescheduling them.

Keywords: COVID-19; Critical Care/education; Internship and Residency; Pandemics

RESUMO

Introdução: No ano de 2020, os serviços de medicina intensiva sofreram profundas adaptações e reestruturações impostas pela pandemia de COVID-19. Este estudo teve como objetivo avaliar o impacto desta pandemia na formação especializada do internato médico de medicina intensiva em Portugal.

Material e Métodos: A Associação de Internos de Medicina Intensiva elaborou um questionário usando a ferramenta *Google Forms*[®], e que foi aplicado durante o mês de agosto de 2020 aos internos de formação especializada de medicina intensiva, em Portugal. Com base na informação recolhida realizou-se uma análise descritiva.

Resultados: Oitenta e cinco médicos internos responderam ao questionário, perfazendo uma taxa de resposta de 62%. Três quartos dos participantes no estudo contactaram com doentes com COVID-19. Oitenta e seis por cento dos médicos internos inquiridos encontravam-se em estágios, tendo os mesmos sido cancelados em 59% dos casos. Setenta e oito por cento referiram uma carga assistencial superior a 40 horas semanais.

Conclusão: A pandemia de COVID-19 teve impacto na formação especializada do internato médico de medicina intensiva em Portugal. A maioria dos internos inquiridos contactaram com doentes com COVID-19, com suspensão dos seus estágios e com prejuízo na remarcação dos mesmos.

Palavras-chave: COVID-19; Cuidados Intensivos/educação; Internato e Residência; Pandemia

INTRODUCTION

A rise in the number of patients and in the activity in intensive care units (ICU) and intensive care departments has been found with the emergence of COVID-19 pandemic. This new challenge has re-launched the relevance of intensive care medicine worldwide, a few years following the creation of this primary specialty in Portugal.

In 2020, intensive care medicine has assumed a crucial role in the provision of healthcare within the Portuguese National Health Service (*Sistema Nacional de Saúde – SNS*), increasing the need for highly trained intensive care physicians, with a core training based on a competence-guided

programme established by the *Portaria* 103/2016, with the development of the professional area and approval of the intensive care medicine residency plan, as well as with the recommendations of the College of Speciality in Intensive Care Medicine and the European Society of Intensive Care Medicine.^{1,2} The first registrars (*internos de formação especializada - IFE*) were admitted in January 2017.² Keeping in mind the constraints of the design of a new training pathway and on the representation of registrars in training, the *Associação de Internos de Medicina Intensiva* (AIMINT) (Intensive Care Registrar Association) was established, aimed

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to ensure the quality and equity of intensive care medicine training in Portugal.

The first case of infection by the new coronavirus was reported in Portugal on 2 March 2020 and a daily struggle has started, in which everyone played an individual and collective role in the treatment of hospitalised patients. Different constraints and structural and staff adaptations were made to meet the needs of the population. Approximately 20% of hospitalised patients were admitted to intensive medicine units. For this reason, these departments underwent significant adaptations, including the expansion towards other hospital settings, due to the increased influx of patients. The COVID-19 pandemic has therefore represented a new challenge to all teams working in intensive care medicine, including registrars, with a potential impact on their training. One of the AIMINT's objectives is to encourage quality medical training to provide the best care for patients.

A study was carried out by the AIMINT, aimed to assess whether the changes required by the COVID-19 pandemic had any impact on the specialised training of intensive care medicine registrars in Portugal, at an organisational and operational level in the SNS institutions.

MATERIAL AND METHODS

Study design and population

This was a cross-sectional study, by anonymous survey, carried out in August 2020. The target population included all physicians in intensive care medicine who were attending a specialist training course in Portugal at the time of the questionnaire.

An invitation for participation was sent by email to all intensive care medicine registrars, with a questionnaire whose completion was voluntary. The invitation was sent on 25 August 2020 and the answers were submitted throughout the seven subsequent days.

The survey included a 17-item questionnaire (12 multiple-choice questions and five open-response questions), giving the respondent the possibility to write a free comment that they considered relevant. The first part of the survey included questions regarding the year of residency and training site; the second part was focused on the activities undertaken by the respondents, changes in their training plans and changes in the quality of training. The survey can be found in Appendix 1 (Appendix 1: <https://www.actamedicaportuguesa.com/revista/index.php/amp/article/view/16700/6603>). As the information was completed anonymously and with no personal information and the participants were informed on how the information was handled before answering the questionnaire, no ethics committee approval was required.

Descriptive Analysis

A descriptive analysis of the data was performed, including absolute frequencies and percentage values, using Microsoft Excel® version 16.16.27 2018 software.

RESULTS

Characteristics of the study sample

The sample characteristics are shown in Table 1; from a total of 137 registrars attending the intensive care medicine internship, 85 (62%) have responded the survey, including 33 (39%) first-year, 23 (27%) second-year, 10 (12%) third-year and 19 (22%) fourth-year registrars. At the time of the study, there were no 5th-year registrars. Eighty-six per cent of the respondents were attending rotation residencies at other departments: 33 were attending internal medicine residencies, 17 were attending anaesthesiology, eight were attending echocardiography training, seven were attending neurocritical care rotation residencies, five were attending bronchoscopy training and three were attending their optional residency (question number 2).

Impact of the pandemic

Fifty-nine percent of the registrars attending rotation residencies at other departments have suspended their residency to provide support in areas with significant influx of patients due to the pandemic (question number 3), 43% of these had not been able to reschedule their rotation residencies at the time when this survey was applied (question number 7). The constraints regarding rescheduling included (i) the fact that rescheduling would mean not being able to complete a 12-month continuous residency in the intensive care department at the hospital of placement that was scheduled for the fifth year of residency,² (ii) the unpredictability of rescheduling residencies that were scheduled in other countries (due to the limitation of international mobility) and (iii) the fact that some technical rotations required a reduced number of registrars per residency period to maintain training quality, with a significant number of registrars requiring rescheduling. Among those who did not have cancelled their residency, 46% have described that

Table 1 – Study respondents

Characteristics	Total (n = 85)
Year of residency, n (%)	
1 st	33 (39%)
2 nd	23 (27%)
3 rd	10 (12%)
4 th	19 (22%)
5 th	-*
Rotation residency, n (%)	
Internal Medicine	33 (39%)
Anaesthesiology	17 (20%)
Intensive Care Medicine	12 (14%)
Bronchial Fibroscopy	5 (6%)
Echocardiography	8 (9%)
Neurocritical Care	7 (8%)
Optional residency	3 (4%)

*: At completion of the study, there were no registrars attending the fifth year of residency.

residencies did not meet the defined objectives and individual expectations (question number 4). Most of those with non-cancelled residencies were included in those attending internal medicine rotation residency, including activity in the ward and in emergency, including care to COVID and non-COVID patients. Overall, 75% of the respondents had looked after COVID patients, either in emergency and in the ward or in ICU - 18% looked after COVID patients only and 57% looked after COVID and non-COVID patients (question number 6).

Seventy-nine percent of the respondents considered that the intensive care medicine residency during the pandemic should be considered as residency time (question number 9). Considering the registrars with no rescheduled residencies, 28% have described constraints in completing the 60-month training plan, including (i) rescheduling residencies due to the need to complete a 12-month continuous fifth-year training at the ICU of origin and (ii) the high demand within a short time that was available for rescheduling and the uncertainty in attending any residencies abroad (questions number 10 and 11).

During the pandemic, 80% of the registrars have described an appropriate escalation of care (question number 12), while 78% have described over 40 hours of weekly workload and 10% over 61 hours per week (questions number 14 and 15). Fifty-two percent of the respondents have described an active participation in in-hospital emergency teams (question number 16).

In view of the impact of the pandemic on training in intensive care medicine, 40% of the respondents considered a possible extension of the planned time for the residency as a relevant issue (question number 13). See also Appendix 2 for detailed information (Appendix 2: <https://www.actamedicaportuguesa.com/revista/index.php/amp/article/view/16700/6604>).

[actamedicaportuguesa.com/revista/index.php/amp/article/view/16700/6604](https://www.actamedicaportuguesa.com/revista/index.php/amp/article/view/16700/6604).

DISCUSSION

This study was aimed at assessing the impact of the first wave of the COVID pandemic on the training of intensive care medicine registrars in Portugal. We have reached the conclusion that 76% of the registrars had looked after COVID patients (Fig. 1). Most of those who were attending residencies at other departments had to suspend these.

Different challenges and structural and staff adaptations were required to meet the population's requirements. Its impact on medical training programmes was not homogeneous among the different medical areas. Some specialties, in particular intensive care medicine, internal medicine, infectious diseases and anaesthesiology were called upon to play a central role in the approach and treatment of patients with COVID-19.^{3,4} Respondents have described an increasing level of autonomy within the pandemic context.

The registrar training programme is standardised in a legal document that regulates and guides registrars to maintain the quality of training.² Regardless of the guidelines, the individual experience of each physician is different depending on the moment in training in which it is performed (residency year), the location, the seasonality of pathologies and their personal tastes or aptitudes, among other factors. The year 2020 was characterised by another factor that changed not only the individual but also the collective experience in a time of pandemic.⁵ Unsurprisingly, no training programme was prepared for the myriad of adaptations that hospitals underwent in this context.⁶

Dealing with the critical phase of the pandemic proved to be the greatest challenge for intensive care medicine in

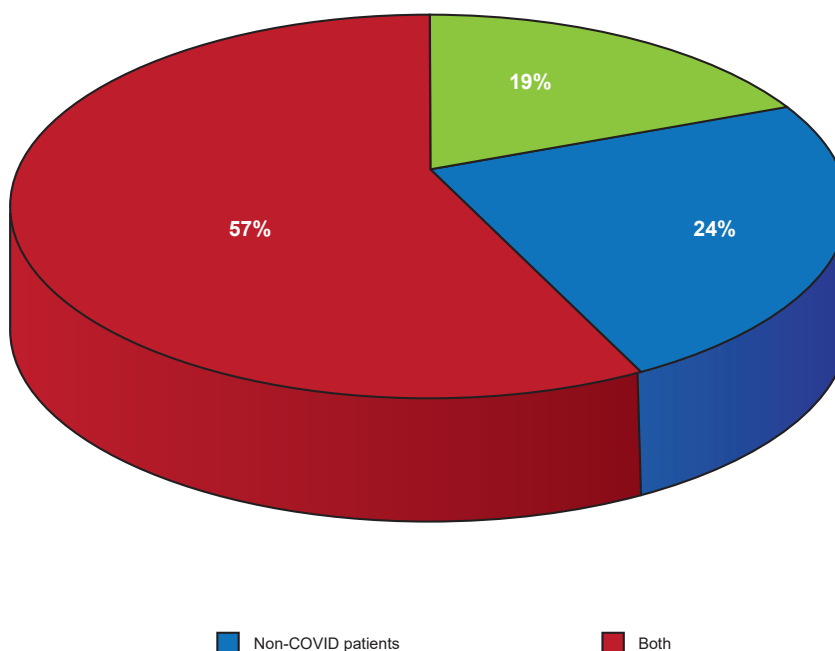


Figure 1 – Typology of patients whom the respondents looked after

the current century.⁷ All physicians working in intensive care medicine, including registrars attending the recently created training programme in intensive care medicine, were called upon to meet this challenge. Seventy-six percent of the respondents looked after COVID patients, exclusively and/or together with non-COVID patients, working in intensive care medicine departments and reinforcing the provision of care. This mobilisation allowed deepening and exercising the acquired knowledge, achieving greater clinical experience, participating in the construction of patient circuits, integrating colleagues from other areas of medicine, providing care to patients with the additional constraint related to the use of personal protective equipment, which have contributed in a positive and comprehensive way to training.⁶

The extra-pulmonary involvement is not unusual in patients with severe infection by COVID-19, making its approach more demanding and challenging. However, looking after mostly COVID patients and for a long time is a limitation to the knowledge gain and makes it mainly monothematic, reducing the contact with patients with other pathologies, which may negatively affect training.

The pandemic had an impact on the respondents' scheduled rotation residencies. According to the results obtained, these were suspended by most of the respondents, affecting rescheduling. As regards those who attended their residencies, the decrease in quality and the difficulty in fully meeting the planned objectives stand out. The increase in workload may have contributed to reducing attendance to scientific meetings, changes in the usual daily work patterns and the suspension of theoretical-practical courses and scientific meetings, which may explain the lower level of satisfaction described by respondents. To compensate the reductions in gaining skills acquired outside intensive care units, it may be necessary to extend the residency period up to the first semester of the last year of residency, so that the training objectives could be acquired.

The clinical and management specificities imposed by the pandemic have raised the level of demand. However, most respondents described that they were able to cope with the escalation in care. Some examples could include the integration into the reorganisation of intensive care departments as well as putting into practice any previously acquired knowledge. In addition, the participation in the management of critically ill patients in times of catastrophe certainly is a rare and difficult experience in intensive care medicine training.

The balance between the positive impacts - acquisition of clinical experience, contact with patients with challenging and pandemic critical infection, gain in autonomy, and the negative impacts - contact with monothematic pathology, suspension and reallocation of core residencies, was in favour of the skills that were obtained and does not neglect the adoption of measures to recover the residencies that were suspended. On the other hand, the adoption of new learning strategies, such as meetings and other training periods using conferencing software platforms, may become

a routine, maintaining the discussion and sharing of knowledge.^{7,8} In short, new methods will be required to maintain training, without neglecting the great clinical demands to which all healthcare professionals are exposed, ensuring the acquisition of essential skills.⁹⁻¹¹

Despite the difficulties and challenges, most respondents have described their preference not to extend the residency time beyond what was initially planned, which may indicate that the negative impacts will not outweigh the positive impacts of the first wave of the pandemic.

The lack of response from all respondents may have influenced the results and limited the conclusions. In addition, the survey was carried out during the first wave, so the respondents' opinions may have changed as the pandemic evolved. On the other hand, the conclusions may only reflect the impact of the pandemic in the Portuguese reality, and not applicable to other realities with similar local organisation and specificities. In the future, it would be interesting to re-apply the same survey or a similar one, to assess whether the impact was maintained over the following months, as well as to analyse which strategies were adopted by the different departments to overcome the constraints and to maintain a high level of training.

CONCLUSION

A significant impact on training of intensive care medicine registrars has been found in Portugal with the COVID-19 pandemic. Most of the respondents to the survey had looked after COVID patients, and have cancelled their training, in addition to different constraints in residency rescheduling. However, the required reorganisation within a pandemic context has allowed maintaining the perspective of completion within a 60-month period, as initially planned. This study was aimed at assessing the impact of the COVID pandemic based on the testimony of registrars attending their residency training.

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AUTHOR CONTRIBUTION

The authors declare that all the elements had a similar contribution to the study design and completion, as well as in writing the manuscript.

HUMAN AND ANIMAL PROTECTION

The authors declare that this project complied with the regulations that were established by the Ethics and Clinical Research Committee, according to the 2013 update of the Helsinki Declaration of the World Medical Association.

DATA CONFIDENTIALITY

The authors declare that they have followed the protocols of their work centre on the publication of patient data.

CONFLICTS OF INTEREST

The authors declare that there were no conflicts of interest in writing this manuscript.

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