

Training and qualification of aeromedical service teams in Brazil

RESUMO | Objetivo: Descrever sobre a formação e qualificação dos profissionais de saúde que realizam remoções aéreas, suas particularidades e legislações pertinentes, no Brasil. Método: Trata-se de uma pesquisa descritiva exploratória, sobre o processo de formação, qualificação e atuação profissional no serviço de transporte aéreo. O desenvolvimento do estudo deu-se no período de julho a agosto de 2021. Resultado: O transporte aeromédico possui duas áreas com características muito distintas, o setor de aviação e o da medicina aeroespacial. Entretanto, possuem processos muito similares, as regulamentações são fragmentadas, as legislações são inespecíficas e há pouca oferta de formação e/ou capacitações. Assim, é essencial o uso de novas ferramentas para gestão do conhecimento. Conclusão: O processo de formação profissional demanda tempo, qualificação específica e desenvolvimento de habilidades avançadas. Para tal, as equipes devem ser especializadas, experientes, capazes de tomar decisões precisas e rápidas.

Descritores: Enfermeiros; Gestão do conhecimento; Resgate Aéreo; Capacitação; Qualificação.

ABSTRACT | Objective: To disclose about a training and qualification of two health professionals who carry out air removals, their particularities and pertinent legislation, not Brazil. Method: It deals with an exploratory descriptive research, on the process of training, qualification and professional performance not air transport service. Either development of the study from July to August 2021. Result: Either aeromedical transport has two areas with very different characteristics, or aviation and aerospace medicine setting. In the meantime, there are very similar processes, the regulations are fragmented, the laws are unspecific and there is little offer of training and / or qualifications. Also, it is essential or use of nova ferramentas for conhecimento management. Conclusion: The professional training process demands time, specific qualification and development of advanced skills. For this, teams must be specialized, experienced, capable of making precise and fast decisions.

Descriptors: Diseases; Gestão do conhecimento; Air Resgate; Training; Qualification.

RESUMEN | Objetivo: Describir la formación y calificación de los profesionales de la salud que realizan remociones aéreas, sus particularidades y legislación relevante en Brasil. Método: Se trata de una investigación descriptiva exploratoria sobre el proceso de formación, calificación y desempeño profesional en el servicio de transporte aéreo. El desarrollo del estudio se llevó a cabo de julio a agosto de 2021. Resultado: El transporte aeromédico tiene dos áreas con características muy diferentes, el sector de la aviación y el sector de la medicina aeroespacial. Sin embargo, tienen procesos muy similares, la normativa está fragmentada, la legislación es poco específica y hay poca oferta de formación y / o formación. Por tanto, el uso de nuevas herramientas de gestión del conocimiento es fundamental. Conclusión: El proceso de formación profesional demanda tiempo, cualificación específica y desarrollo de competencias avanzadas. Para ello, como equipos, deben ser especializados, experimentados, capaces de tomar decisiones acertadas y rápidas.

Descriptores: Enfermeras; Conocimiento administrativo; Rescate aéreo; Capacitación; Calificación.

Bruno Gonçalves da Silva

Nurse (UNIFENAS), Master in Business Administration (UNA University Center), Doctoral Student in Information Systems and Knowledge Management (FUMEC University). Assistant Professor FCMMG and Airplane Nurse at Unimed Aeromédica. Universidade FUMEC
ORCID: 0000-0001-5173-0036

Vânia Paula de Carvalho

Nurse (PUC-MINAS), Intensive Care Nurse (IEC-PUC MG) and Aerospace Nurse (FIC-UNIVIRTUAL), Master in Health Promotion and Violence Prevention (UFMG). Coordinator of Nursing/RT at Unimed Aeromédica
ORCID: 0000-0002-9336-3606

Maria Eduarda Becho Arger Marchetti

Physician (UFMG), Specialist in Anesthesiologists and Aerospace Medicine. Emergency and Horizontal Physician at UPA-CS BH, Anesthesiologist at HCMG and Flight Physician at Unimed Aeromédica.
ORCID: 0000-0002-0242-243X

André Alves Elias

Physician (UNIFENAS). Flight Physician at Unimed Aeromédica and BOA-SAMU BH.
ORCID:0000-0002-1103-6450

Flávio Lopes Ferreira

MPhysician (UFMG), Master in Physiology and Pharmacology (UFMG), General Surgeon and Specialist in Aerospace Medicine. Medical Manager at Unimed Aeromédica, Professor at the Faculty of Medical

Sciences of Minas Gerais ORCID: 0000-0001-7740-4394

Armando Sérgio de Aguiar Filho

Social Communicator, Full Professor at FUMEC University and Faculty Promove. PhD in Information and Knowledge Management (UFMG).
ORCID: 0000-0001-5542-7165

Received: 22/09/2021

Approved: 08/10/2021

INTRODUCTION

In Brazil, the first records of aeromedical removal services date back to 1988, by the Rio de Janeiro Fire Department associated with the State Air Operations General Coordination, aimed at rescues, rescues and eventually secondary removals. On the other hand, there are private institutions in the market that offer the service and specific training for professionals, under the supervision of the Civil Aviation Department.¹

The growing sophistication of the Aeromedical Removal Service in the world meets the different needs and characteristics of each country. The main distinctions are based on territorial dimensions, the heterogeneous distribution of medical resources, the existence of isolated communities and the high number of traffic accidents.²

Air transport of critically ill patients is at the forefront of the world, constantly changing to adapt to modern times. Driven by market demand for advanced care practices for critically ill patients, it grows exponentially.³

The expansion of emergency service providers for critical care transport brings with it a pressing need for formal education, multifaceted clinical preparation, a vision of transport logistics and expertise in critical care. As well, it can contribute to filling the knowledge gaps for professionals in the aerospace environment.³

It is defined by air transport of the wounded or sick, in an environment similar to the Intensive Care Unit, which needs the attention of a highly specialized team, requires priority attention and can be an important determinant of its prognosis.⁴ It has professionals with advanced practices, experienced specialists, experts in aerospace medicine and able to adapt to work in a confined environment.

In the air environment, mastering the knowledge of advanced practices by multidisciplinary teams is essential.

Air transport of critically ill patients is at the forefront of the world, constantly changing to adapt to modern times. Driven by market demand for advanced care practices for critically ill patients, it grows exponentially.

Well-established intersectorial interfaces and the training of the team involved are necessary, so that the care of critically ill patients is safe and of quality.^{5,6}

Intensive care is based on a tripod: critical patient, highly technical equipment and specialized multidisciplinary team. These factors are interconnected, interdependent and trained human resources minimize the risk of adverse events.⁷

In this sense, the evolution of care for transported patients, the types of ambulances used, teams with advanced practices, the importance of their effective training, mastery of the foundations of aerospace medicine, can contribute to the safety and quality of transport.⁸

Thus, the objective of this work was to describe the training and qualification of health professionals who carry out patient air removals, their particularities and relevant legislation in Brazil.

METHOD

Type of study

This is an exploratory descriptive research on the process of training, qualification and performance of on-board nurses in the air transport service in Brazil.

Descriptive research exposes the characteristics of the specific population or phenomenon to be studied, defines its nature and makes a correlation between its variables.⁹ And the exploratory research aims to provide a deeper understanding of the proposed problem in order to make it possible to understand it clearly.

To this end, a search was carried out in the Virtual Health Library with a focus on the proposed theme, there was a shortage of publications, those found only mentioned the importance of training and qualification. The search took place from July to August 2021. There was no need for consideration by

the Research Ethics Committee, as the study did not involve human beings. Image recording was performed during realistic simulation of neonatal transport by the authors.

RESULTS/ DISCUSSION

In Brazil, the activity of air transport of the sick is recent and there are few educational institutions that offer specialization in nursing and/or aerospace medicine. Furthermore, regulations are fragmented by professional training and legislation is unspecific.¹⁰

Therefore, the health crew must follow the norms, regulations, mastery of the particularities of the aircraft and critical patient care. In this type of transport, professionals must have great expertise and training for service in an adapted environment.¹¹

It is observed that aeromedical transport has two areas with very different characteristics, the aviation sector (pilot and copilot) and aerospace medicine (physician and nurse). However, they have very similar processes when we assess the need for teamwork, excellent process management, organization, planning, use of strict operational guidelines, use of state-of-the-art technologies, concern with safety and high quality standards.

The Air Transport service, which is part of the pre-hospital emergency and emergency medical care system, is now regulated by Ministry of Health Directives GM/MS nº 2048 of November 5th, 2002 and nº 1.863/GM of September 29th, 2003, throughout the national territory.^{6,12} In the chronological evolution, for aerospace nursing, the Federal Council of Nursing (COFEN) published Resolution No. 551, of July 12th, 2017, standardized the role of nurses in mobile and inter-hospital pre-hospital care (APH) in air vehicle. Followed by COFEN Resolution No. 660/2021, of March 3rd, 2021, amended COFEN Resolution No. 656, of

Figure 1- The Realistic Simulation Image Recording in Neonatal Air Transport



Source: Authors' personal archive, 2021.

December 17th, 2020, which regulated the performance in direct assistance and management of APH and Inter-hospital in an air vehicle.^{6,12,13}

It is worth remembering that, during the transfer of critically ill patients, the health team is composed of two professionals, who must have theoretical-practical domain, extensive knowledge of aerospace medicine, physical capacity and others. The key thing is to develop the ability to work as a team and, consequently, be perfectly in tune with your partner.

The experience of each professional is very important, as in a confined environment we rely exclusively on the expertise of the partner and this knowledge must complement each other harmoniously. Likewise, the interaction between the team must be absolute, synchronous, with mutual respect, respectful communication, focusing on qualified and humanized care for the air-removed patient.

For this, investment by companies in training programs with active methodologies is essential. As well as the possibility of using new teaching tools.

In the care work process, in addition to the competences of nurses described by the nursing ethics code through COFEN Resolution 311/2007, the practice of on-board nursing is supported by

Law No. 7498/86, which regulates the Professional Practice of Nursing. In it, it is established that the organization and direction of direct care to critical patients and where activities of greater technical complexity are carried out are exclusive to nurses.^{6,8}

There is a range of factors to be managed and professionals must be aware of all the logistics and stages of air removal. Aligned with advanced training, up-to-date scientific technical knowledge, extensive experience, with good dynamics between the flight and health teams, ability to handle equipment and technologies necessary for care throughout the transport.

COFEN Resolution 0551/17 which regulates the role of nurses in Mobile Pre-Hospital and Inter-Hospital care in Air Vehicle, which clarifies that the nurse must have specialization and/or residency and/or specialist title issued by society or already be active in the area until the publication of the resolution.^{6,13}

To guide the professionals in the management constitution within an aeromedical rescue service, there is CFM Resolution No. 1671/03, which defines the necessary inputs for the advanced support ambulance and describes them, with the necessary adaptations for use in hypobaric environments.¹⁴

It emphasizes the importance of professionals knowing the laws that regulate them, collaborating in the construction of new perspectives in the care and management of critically ill patients in an air environment. Furthermore, the process of training and qualifying the flight team requires extensive time and specific preparation. For

It emphasizes the importance of professionals knowing the laws that regulate them, collaborating in the construction of new perspectives in the care and management of critically ill patients in an air environment.

this, professionals must complete their graduation, specialization and/or residency and keep up-to-date throughout their professional career.¹⁵

In this context, aeromedical transport must take place when the benefit of special care outweighs the transport risks. It is considered the choice of the type of aircraft, the distance from the

aerodrome, the transfer time, the traffic and weather conditions, safety, the patient's pathology, the need for interventions and others.¹⁶

Currently, one of the main objectives of studies and work in health is to ensure quality care to the patient, offering better care, diagnosis and therapy. To this end, there were changes in the organization of hospital structures, making them self-sufficient, specialized and stratified according to their complexity. For this, the allocated resources were optimized, as well as the costs and profitability.¹⁷

It is noteworthy that teamwork is one of the essential skills for transport to take place in a safe and qualified manner.

As well as training programs are paramount, the possibility of using new teaching tools such as realistic simulations and/or use of technologies. These investments, in line with up-to-date professors, will be able to corroborate to improve the provision of services, the management of safety and quality systems and teamwork.

CONCLUSION

Nursing and aerospace medicine are areas of activity in expansion, the process of training new professionals requires time, specific qualification and development of advanced skills. Therefore, the air transport of critical patients must be carried out by specialized, experienced teams, with the ability to develop high-level communication, capable of taking accurate and quick decisions.

There is an urgent need for regulations that protect healthcare professionals, recognize veteran professionals as specialists, effectively oversee service providers and invest in airport security in our country. Due to its uniqueness, the process of training health professionals is extensive, costly, fragmented and without specific regulations.

The importance of qualification is evident, in order to effectively recognize the particularities of service in the aerospace environment and, consequently, improve the quality and safety of service in aeromedical transport.

Above all, the role of the on-board nurse is multifaceted. It is necessary to empower, in order to improve the praxis and, consequently, the holistic and humanized care. Furthermore, the importance of further studies and investment in new tools for knowledge management is highlighted. 🐦

References

- 1- Rocha PK, et al. Assistência de enfermagem em serviço pré-hospitalar e remoção aeromédica. Rev. Brasileira, de Enferm. [base de dados da Internet]. 2003. Brasília: [acesso em: 17 Set 2018]. Disponível em: <http://www.sielo.br/pdf/rebeu/v56n6/a22v.56n6.pdf>.
- 2- Gentil RC. Aspectos históricos e organizacionais da remoção aeromédica: A dinâmica da assistência de enfermagem. Rev. Escola de Enfermagem USP. [base de dados da Internet]. 1997. Brasília: [acesso em: 25 Ago 2018]. Disponível em: <http://www.sielo.br/pdf/reusp/v31n3/v31n3a08.pdf>
- 3- Pollack AN, Murphy M, Stathers LC, Pecora D, McEvoy M, Rabrich JS. Critical Care Transport. AAOS. Jones and Bartlett Publishers: MA. 2010. 4-19p.
- 4- Rajdl E. Air transport: basic and clinical aspects. Revista Médica Clínica Las Condes. [base de dados na internet]. 2011. [acesso em 29 Ago 2018]. 22(3): 389-395. Disponível em: www.clc.cl/clcprod/media/contenidos/.../389-396-dr-rajdl.pdf
- 5- Judge, T. (2008). Breathing easier—good news from air medicine. Critical Care, 12(4), 1-2.
- 6- da Silva, B. G., Viana, L. L., Faustino, S. D. S. F., Silveira, C. D. P. S., de Carvalho, V. P., & de Aguiar Filho, A. S. (2021). Preparação do enfermeiro para o atendimento à múltiplas vítimas no resgate aéreo. Nursing (São Paulo), 24(278), 5948-5957.
- 7- Ratton JLA. Medicina Intensiva. 4. Ed. Rio de Janeiro: Atheneu; 2005.
- 8- Dias CP, Chrispim Silva MA, Santos MS, Lopes Ferreira F, Carvalho VP, Alves M. The interdisciplinary team experiences of managing patient safety during a fixed-wing inter-hospital aeromedical transport: A qualitative study. Int Emerg Nurs. 2021 Sep 8;58:101052.
- 9- Vergara, S. C. (2006). Projetos e relatórios de pesquisa. São Paulo: Atlas.
- 10- Bonuzzi, K. L., Muniz-Silva, C. C. S., Santos, O. P., Moraes-Filho, I. M., Lopes, V. C., & Silva, R. M. Nurses' performance in air pre-hospital care for polytraumatized patients: review of literature. Rev Cient Sena Aires.[Internet]. 2016 [cited 2019 Mar 21]; 5 (2): 171-77.
- 11- Thomaz RR, Miranda MFB, Souza GAG, Gentil RC. Enfermeiro de bordo: uma profissão no ar. Acta paul. enferm.1999;12(1):86-96.
- 12- Gomes MAV, Alberti LR, Ferreira FL, Gomes VM. Historical aspects of aeromedical transport and aerospace medicine – review. Rev. Med. Minas Gerais. 2013; 23 (1): 116-123. [base de dados da Internet]. 2016. Belo Horizonte (MG): [acesso em: 25 Ago 2018]. Disponível em: rmmg.org/exportar-pdf/20/en_v23n1a18.pdf
- 13- Conselho Federal de Enfermagem. Resolução COFEN 0551/17. [acesso em 17 Set 2018]. Disponível em: <http://site.portalcofen.gov.br>
- 14- Santos HGL, Guedes CCP, Aguiar BGC. A segurança do paciente no transporte aeromédico: uma reflexão para a atuação do enfermeiro. Rev. Acreditação.2014. [acesso em 13 Set 2018]. Disponível em: <https://dialnet.unirioja.es/descarga/articulo/5626590.pdf>.
- 15- Raduenz, S. B. D. P., Santos, J. L. G. D., Lazzari, D. D., Nascimento, E. R. P. D., Nascimento, K. C. D., & Moreira, A. R. (2020). Atribuições do enfermeiro no ambiente aeroespacial. Revista Brasileira de Enfermagem, 73.
- 16- Carvalho VP, Pena CD, Pimenta FS, Lopes FL, Souza AAP, Castanheira CH. Transporte Aeromédico. In: Santana JCB, Melo CL, Dutra BS. Atendimento Pré-hospitalar: Procedimentos Básicos e Especializados. 2018. Curitiba. CRV. (1) 631-649p.
- 17- Slaviero RS, Griep R. Perfil epidemiológico dos pacientes atendidos no ano de 2014 pelo serviço de transporte aeromédico inter-hospitalar vinculado ao Consórcio Intermunicipal SAMU Oeste, como parte integrante da Rede Paraná de Urgência. Revista Thêma et Scientia.2015. 05 (2E).53-62p.