

**FORMAL AND PROFESSIONAL REQUIREMENTS FOR THE STAFF OF HYPERBARIC CENTRES.
PART 1**

Piotr Siermontowski¹⁾, Beata Janas³⁾, Romuald Olszański²⁾

¹⁾ Polish Naval Academy, Department of Underwater Works Technology in Gdynia, Poland

²⁾ Institute of Maritime and Hyperbaric Medicine of the Military Medical Institute in Gdynia, Poland

³⁾ Cancer Prevention Centre, Oncology Centre in Warsaw, Poland

ABSTRACT

This two-part article reviews the current legal situation of specialist staff performing hyperbaric procedures for purposes not related to diving. Numerous discrepancies between the applicable legal acts and the lack of legal regulations concerning procedures not financed from the state budget have been noted.

The first significant problem consisted in the lack of a correlation between various Regulations of the Minister of Health concerning hyperbaric oxygenation, as well as inconsistencies with the programmes of medical specialisation effective in Poland.

The second problem is the lack of determination requirements of medical personnel other than doctors and nurses in the documents of the Ministry of Health.

It was also found that medical hyperbaric centres which do not apply for funding from the budget (National Health Fund), do not even meet the minimum requirements defined as to the qualifications of the staff working there. Moreover, there is a lack of knowledge of the requirements set out in legal acts other than those concerning medicine.

Keywords: hyperbaric treatment, personnel, specialisation, qualifications.

ARTICLE INFO

PolHypRes 2017 Vol. 61 Issue 4 pp. 7 - 14

ISSN: 1734-7009 **eISSN:** 2084-0535

DOI: 10.1515/phr-2017-0017

Pages: 13, figures: 1, tables: 0

page www of the periodical: www.phr.net.pl

Review article

Submission date: 13.11.2017r.

Acceptance for print: 10.12.2017r.

Publisher

Polish Hyperbaric Medicine and Technology Society



INTRODUCTION

Due to the intense development of hyperbaric oxygen therapy centres financed both by the State, from the National Health Fund, and from private funds, we found it purposeful to analyse the formal requirements for professional personnel, both medical and technical, working at such facilities.

The professional staff of a hyperbaric centre consists of:

- Doctor;
- Nurse;
- the "Attendant", (often referred to as the chamber assistant);
- Chamber operator.

The first part of the article deals with the requirements for doctors.

Hyperbaric oxygen therapy is applied in relation to an ever-expanding number of diseases by doctors of various specialisations. The consensus on the indications for hyperbaric treatment adopted in Europe was reached at the *7th European Consensus Conference on Hyperbaric Medicine* in Lille, France, in 2004. The indications are described in the Polish textbook on hyperbaric medicine edited by professors Aleksander Sieroń and Grzegorz Cieślak [1] from the Medical University of Silesia. The textbook took into account the progress that has been made in this field of medicine since the publication of the previous Polish textbook by professors Tadeusz Doboszyński and Tadeusz Orłowski [2] from the Military Medical Academy issued in 1977.

A much wider range of therapeutic indications is approved in the USA [3,4] where it is defined by the American Committee of Hyperbaric Medicine (ACHM).

In brief, the indications for hyperbaric therapy approved in Lille can be divided into: toxicological (CO poisoning), diving (decompression sickness, pulmonary barotrauma), ENT (acute hearing loss), surgical (crush syndrome, chronic wounds, burns) surgery with diabetology (diabetic foot), orthopaedic (bone and bone marrow infections, bone fractures), infectious (infections, especially with anaerobes), haematological (significant anaemia) [1,2]. Of course, hyperbaric oxygen is also used in many other diseases for which it is indicated (e.g. post-traumatic stress disorder) or even where there are no such indications (e.g. cerebral palsy).

Therefore, it seems logical that particular medical specialisations should extend the scope of therapeutic procedures utilising hyperbaric oxygen therapy, which would then be reflected in the specialisation programmes.

The second possibility would be to include hyperbaric therapy as a whole within the framework of one specialisation and "performed services" in the form of hyperbaric treatment procedures for other medical specialisations.

When analysing in detail the programmes of medical specialisations, both single-stage and the present – modular, the authors concluded that their creators followed the latter route.

In some specialisation programmes we find references to the application of hyperbaric therapy, for instance Clinical Toxicology – modular specialisation [5] where in the specialised module, in the chapter dealing with treatment of patients who have been poisoned, we find the following points e) *indications for normo- and*

hyperbaric therapy and in the list of practical skills point 13. *The application of hyperbaric oxygen therapy in clinical toxicology*. In the previous version of the programme, where Clinical Toxicology appeared as a detailed specialisation, there were no mentions of hyperbaric treatment [6].

The same applies to the specialisations under Orthopaedics and Traumatology, and Infectious Diseases, where there was no mention [7] of hyperbaric oxygenation in the single-stage programmes, however in the current modular specialisation of the course "Emergency medical services" in the section "Advanced cardiopulmonary resuscitation" one of the subjects is: *... substitute ventilation, central nervous system protection, therapeutic hypothermia, renal replacement therapy, hyperbaric oxygen therapy* [6].

In other specialisations where hyperbaric therapy is currently applied, we do not find mentions on treatment with the use of oxygen under increased pressure in either the modular or the previous single-stage specialisation programmes [5,6,7]. Examples are surgery (general and vascular), diabetology, haematology, or otolaryngology.

A much wider scope of knowledge in the field of hyperbaric treatment is found in the specialisation programmes of Transport Medicine [7], Aviation Medicine and, above all, Maritime and Tropical Medicine [5].

In the no longer existent one-stage specialisation of "Transport Medicine", we find a course in aviation medicine and the section *sudden decompression and decompression sickness* as well as a course in marine medicine with the subject of *medical care in underwater works, pathology and clinic of decompression sickness*. During the internship in the field of marine medicine, we find an entry on *participation in at least 10 hyperbaric therapy procedures*.

The specialised Aviation Medicine module, contains a wider scope of knowledge on hyperbaric therapy, in the practical: Training in the performance of medical procedures – point 3. *Exposure to sudden decompression – participation in 20 procedures under the supervision of a specialist*, and in the theoretical: introductory course – point 24) *Decompression sickness, sudden decompression*.

Maritime and Tropical Medicine: citing the objective of the specialisation training in the specialisation module: *The area of specialisation includes health needs ... of individuals subjected to hyperbaric therapy*. The list of acquired professional competences contains: point 1. *C. work performance in the conditions of elevated ambient pressure*. Point 2) *risk type assessment ... in the exposure to elevated ambient pressure*. The specialisation programmes include a weekly course "Hyperbaric and diving medicine", as well as an internship in the field of hyperbaric and diving medicine, including participation in 10 hyperbaric treatment procedures.

The most important provisions are: within the required knowledge – *A physician is expected to demonstrate the following knowledge upon completion of the specialisation training in the field of marine and tropical medicine: ... 3) Diving and hyperbaric medicine – the effect of elevated pressure on the human body, decompression accidents, pressure injuries, other diving diseases, decompression principles, prevention of diving diseases, ... the use of elevated oxygen pressure in the*

therapy of diseases in other fields of medicine ... within practical skills – 11) knowledge of the principles of hyperbaric therapy for other medical specialisations.

Based on the specialisation training programme, this medical specialisation should be considered as having all the predispositions to conduct hyperbaric treatment.

Particularly noteworthy is the specialisation in the field of Anaesthesiology. While in the previously applicable one-stage specialisation programme in the chapter devoted to intensive therapy, section "Toxicology" [7] we find subsection 4 – *Hyperbaric therapy*, and in current specialisation programme Anaesthesiology and Intensive Therapy (modular) *there is no mention of hyperbaric treatment*. Presumably the head of the Experts' Team creating the specialisation program, Professor Krzysztof Kusza came to the right conclusion that hyperbaric therapy is not applicable in anaesthesia or intensive therapy, thus these issues have not been included in the programme [5].

However, since there are not many experts in Poland in Marine and Tropical Medicine, similarly to Transport or Aviation Medicine, the best solution for the qualifications problem would be a Medical Skill. It would allow specialists in fields where hyperbaric therapy is used: for example, surgeons or otolaryngologists, to acquire the knowledge needed to safely use this method of therapy. And indeed, such a skill is on the list of "skills in the narrower fields of medicine" [8].

Appendix 1 to this regulation constitutes a list of skills, with Hyperbaric Medicine found in item 30. Appendix 2, on the other hand, specifies the type of physicians for whom this specialisation is available. Here we find the first gap in the thus far logical chain of training and competences. Namely, this skill is reserved for professionals in the area of Maritime and Tropical Medicine (who gained the required knowledge during specialisation training), Transport and Aviation Medicine (who also mostly gained knowledge during specialisation training), Emergency Medicine and Toxicology, which is justified in particular for cases of acute poisoning with carbon monoxide. It is however difficult to present a logical explanation to two other specialisations listed in the Appendix. These are: Occupational Medicine, Anaesthesiology and Intensive Therapy.

The presence of these two specialisations, where hyperbaric oxygenation has no application whatsoever, would be explainable if it was possible to take up training and obtain the skills via doctors of other specialisations: orthopaedists, surgeons and diabetologists. However, the regulation does not create such an opportunity.

Unfortunately, this is neither the only nor the most important discrepancy between coherent and logical programmes of medical specialisation and applicable ministerial regulations.

The biggest problem preventing the development of hyperbaric medicine in Poland from taking a normal direction and being consistent with a given logic, is the announcement of the Minister of Health on 14 April 2016 (JL. 2016 it. 694) [9] and all acts prior to this document containing mentions of hyperbaric therapy. We read there, inter alia: *the following specialists are entitled to pursue hyperbaric treatment: in the field of anaesthesiology or anaesthesiology and resuscitation, or anaesthesiology and intensive care therapy, or emergency medicine and clinical toxicology, having completed a course of hyperbaric medicine in accordance with the recommendations of the European Committee for*

Hyperbaric Medicine.

As can be seen from the above text, the announcement was created in complete isolation from the system of postgraduate education of physicians used in the Republic of Poland. It does not include specialisations that qualify physicians to conduct hyperbaric therapy or specialisations in which this type of therapy is used.

However, it refers to the recommendations of a foreign institution without mentioning the need to adapt these provisions to existing legal regulations in Poland.

The recommendations referred to in the Announcement of the Minister of Health are included in the *European Code of Good Practice in hyperbaric oxygen treatment* from 2004 [10]. In Annex 1 of this document we find the *Standards of education and practical training for the personnel of Hyperbaric Medicine Centres*. The qualifications of doctors are specified as follows: *... a medical doctor with a broad multi-specialised training. The best education can be provided by: internal medicine, intensive care and/or intensive therapy, reanimation and anaesthesiology. Other specialisations may also be appropriate if the candidate has documented experience and has received the necessary education and practical training in the field of Hyperbaric Medicine.*

Due to the smaller number of specialisations in other European countries, it is logical to position internal diseases in to first place (e.g. diabetes – diabetic foot), while the requirements of "necessary education and training" in the Polish system of specialisation are met by Maritime and Tropical Medicine, or any other specialisation after obtaining the skills of Hyperbaric Medicine. Unfortunately, however, the announcement suggests anaesthesiology.

Noteworthy is also the part of the document that defines and classifies doctors' qualifications. Stages I and IIa according to the European Committee are as follows:

I. Physicians – doctors certifying divers to practice. The inconsistency with Polish law is obvious, since nowhere in the regulations of the Minister of Health concerning the issues related to diver qualification [11] does it refer to the European Committee document, and the training system proposed there, but most of all, they logically correspond with the system of medical specialisations, by appointing specialists in marine and tropical medicine, transport medicine, aviation medicine and additionally trained occupational medicine specialists to take qualification decisions. Therefore, people competent in a given field.

IIa. "Diving medicine" doctors – with qualification authority, and, additionally, having the competences of forensic specialists in the *proceedings related to diving accidents*.

Only qualifications marked IIb – hyperbaric medicine doctor – are connected with hyperbaric oxygen treatment.

Obtaining this "title" is contingent upon completion of the course, whose programme can also be found in the currently discussed document. The important positives include the following requirement: *it is highly recommended that the courses are taught by a university; it is highly advisable to conduct them by national authorities in the field of health protection, under the auspices of the national scientific society of diving medicine and/or hyperbaric medicine*. Unfortunately, it is not fully implemented in the majority of courses organised in Poland.

In the analysis of the course programme, it should first be confirmed that the scope of knowledge acquired during the specialisation training within "Maritime and Tropical Medicine" contains the majority of topics covered by the training, which confirms the unjustifiability of transfer of the provisions of the ECHM Code onto Polish legal ground. This is also indicated by

the analysis of the substantive content of the course. Namely, it is primarily a diving medicine course that largely covers the information that does not apply to clinical treatment with hyperbaric oxygen. The percentage distribution of the thematic content of the course is shown in Figure 1.

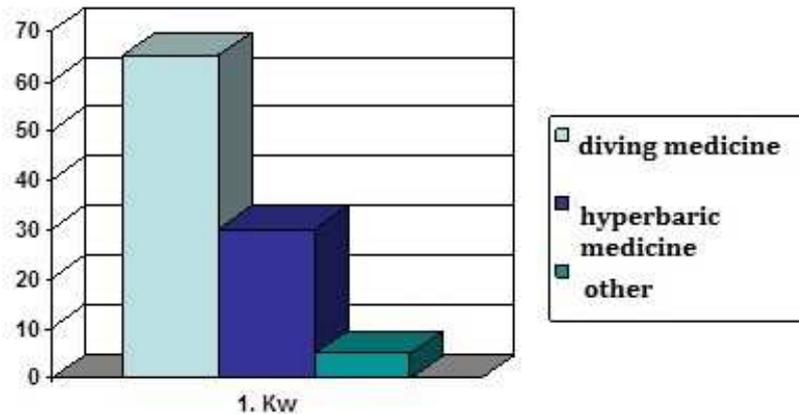


Fig. 1 The ECHM course programme.

The programme conducted in concord with the instructions included in the European Committee document, dictates that the course must last about 2 weeks and involve a group of over a dozen specialists as lecturers. Being aware of the fact that over half of the lecture material is of no practical significance to the participants, programme adjustment should be considered to the legal principles effective in Poland, which would bring a positive educational and economic effect.

It should also be stated that the system of postgraduate training existing in Poland allows for the rapid development of hyperbaric therapy, corresponding to the trends prevailing in Europe and the world. Making corrections only in two documents signed by the Ministry of Health: The Announcement on guaranteed services and the Regulation on medical skills would solve most problems concerning the medical personnel in hyperbaric centres, additionally escalated by the shortage of specialists – anaesthesiologists in Poland.

The requirements for medical personnel described in the Announcement relate, as the title itself indicates, only to guaranteed services, i.e. those reimbursed by the State. However, in Poland, there are more and more centres offering the possibility of undergoing hyperbaric oxygen therapy not bound by an agreement with the National Health Fund. These are private institutions that have different types of hyperbaric facilities (single-seat, multi-seat) with

different working pressure ranges and declaring a very wide range of services. Such centres offer both hyperbaric treatment of diseases in accordance with the recommendations of modern medical knowledge, as well as other conditions for which oxybarotherapy is not an indication, or its effectiveness is not confirmed by research. Hyperbaric oxygen is also more often used as a support therapy in sports and cosmetics, where it is advertised as a "rejuvenation method".

One common feature of all these institutions is the lack of binding legal norms that would impose the obligation of hiring trained personnel. Of course, many centres, especially those with multi-seat chambers offering the same treatment range as centres financed from the state budget, employ staff with appropriate qualifications and extensive experience. Unfortunately, in most cases, particularly when it comes to single-seat, so-called "soft" chambers, protection is not ensured by doctors possessing suitable knowledge.

Therefore, there is an urgent need to determine the requirements for the qualifications of medical personnel also in private centres, preferably by requiring the medical skills of medical specialisation of Hyperbaric Medicine, or a certified course, and including this in the Regulation of the Minister of Health.

REFERENCES

1. Sieroń A., Cieślak G. (ed.) An Outline on Hyperbaric Medicine. α-medica press Bielsko – Biala 2006 ISBN 83-88778-97-8;
2. Doboszyński T., Orłowski T. (ed.) The Basics of Hyperbaric Oxygenation. Wydawnictwo Wojskowej Akademii Medycznej Gdynia 1977;
3. Kindwall E., Goldmann R. (ed.) Hyperbaric Medicine Procedures. St. Lukes Medical Center Milwaukie WI USA 1995;
4. Weaver L. (ed.) Hyperbaric Oxygen Therapy Indications. Undersea and Hyperbaric Medical Society Best Publishing Company North Palm Beach, FL USA 2014 ISBN 978-1930536-73-9;
5. <http://www.cmkp.edu.pl/ksztalcenie/studia-specjalizacyjne-lekarzy/programy-specjalizacji-lekarskich/modulowe-programy-specjalizacji>. Downloaded: 2017-12-02;
6. <http://www.cmkp.edu.pl/ksztalcenie/studia-specjalizacyjne-lekarzy/programy-specjalizacji-lekarskich/archiwum-programow/archiwum-specjalnosci-szczegolowe>. Downloaded: 2017-12-02;
7. <http://www.cmkp.edu.pl/ksztalcenie/studia-specjalizacyjne-lekarzy/programy-specjalizacji-lekarskich/archiwum-programow/archiwum-specjalnosci-podstawowe/>. Downloaded: 2017-12-02;
8. Minister of Health Regulation of 27 June 2007. J.L. of 11 July 2007, 124.867;
9. Announcement of the Ministry of Health of 14 April 2016 on publication of the consolidated text of the Minister of Health Regulation on guaranteed hospital treatment services. J.L. of 26 May 2016, 2016 694.490;

10. <http://www.echm.org/documents/ECGP%20for%20HBO%20-%20May%202004%20-%20PL.pdf> Downloaded: 2017-12-02;
11. Minister of Health Regulation of 11 February 2011 amending the regulation on health conditions applied in the performance of underwater works. J.L. 2011.40 211.2776.

dr hab. med. Piotr Siermontowski

Zakład Technologii Prac Podwodnych
Akademia Marynarki Wojennej
81-127 Gdynia, ul. Śmidowicza 69
naczeln@phr.net.pl