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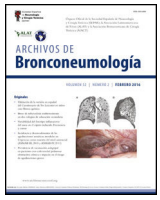

Consensus Document

Consensus document on medical faculty education on the treatment of smoking☆

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ABSTRACT

We report the results of a consensus reached by an expert group of representatives from different medical societies in Latin America on the objectives, competencies (knowledge, and skills), content, and duration of smoking cessation education in Latin American medical schools. The document discusses the following aspects: epidemiology, nicotine dependence, factors for initiation and maintenance of tobacco use, smoking-related disorders, diagnosis, minimal intervention, non-pharmacological and pharmacological interventions for smoking cessation, and prevention of smoking.

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Documento de consenso sobre la docencia del tabaquismo en las facultades de Medicina

Palabras clave:
Tabaquismo
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RESUMEN

Se presentan los resultados del consenso alcanzado por diferentes expertos en representación de sociedades médicas respiratorias de la Comunidad Latinoamericana y de la Península Ibérica sobre cuáles deben ser los objetivos docentes y competencias asociadas (conocimientos y habilidades), así como los contenidos concretos y la necesaria dedicación horaria que las escuelas de Medicina de

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dicho ámbito geográfico deberían tener sobre el tabaquismo. El documento desarrolla los siguientes aspectos, que cubren todo el espectro del área de conocimiento sobre tabaquismo: epidemiología, bases neurofisiológicas de la dependencia a la nicotina, factores asociados con el inicio y mantenimiento de dicho consumo, enfermedades asociadas con el tabaquismo, diagnóstico, intervención mínima, medidas terapéuticas no farmacológicas, tratamiento farmacológico y prevención.
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Introduction

Smoking is a chronic addictive disease[1] that must be managed by appropriately trained health professionals. In this respect, the training of future doctors must facilitate the acquisition of both theoretical knowledge about the prevention and treatment of smoking, and the practical skills that must be developed to help smokers quit.[2,3]

Some progress has been made, especially in the theoretical teaching of the treatment of smoking, but despite this, medical school training is still very poor. This is clearly the situation in both the Anglosphere and Ibero-American medical communities,[4–9] but studies have shown that students who receive good theoretical and practical education in this area during their medical training provide better and more effective care in their subsequent professional practice.[10–12]

In view of these premises, a group of smoking experts from the major societies in the field of pulmonology and thoracic surgery in the Iberian Peninsula and Ibero-America (Latin American Thoracic Association [ALAT], Brazilian Society of Pulmonology and Phthisology [PSBPT], Spanish Society of Pulmonology and Thoracic Surgery [SEPAR], and the Portuguese Society of Pulmonology [SPP]) have produced a consensus document that defines the minimal teaching requirements for medical students in this area. It is important to note that this group of experts comprises representatives from more than 20 Latin American countries and 2 from the Iberian Peninsula. The impact of its recommendations could therefore benefit a total population of more than 400 million people.

In 2006, the SEPAR Smoking Division made recommendations on the teaching of smoking cessation in Spanish medical schools.[13] The document published here is based on those guidelines, although it contains important updates and developments. It defines the educational objectives, and the knowledge and skills that students should acquire, as well as the specific issues that must be covered in each smoking-related topic. In addition, it specifies the minimum time that should be devoted to classroom teaching of each theoretical topic (presentation and discussion), to complementary practical classes, and to self-learning by the student. The document also places special emphasis on the student as the linchpin of the training and learning process.

The paper address the entire spectrum of the knowledge of smoking cessation, i.e., epidemiology, the neurophysiological basis of nicotine dependence, factors associated with the initiation and maintenance of tobacco use, diseases associated with smoking, diagnosis, minimal intervention, non-pharmacological therapeutic measures, pharmacological treatment, and prevention.[2,8–12,14–17] Throughout the document, certain periods of classroom learning are proposed for the study of each of these topics, adding up to a total of 120 min. However, teaching institutions in each of the countries of the experts who authored this document dedicate different amounts of time to the face-to-face teaching of this discipline. This proposal should therefore be adapted according to each country's needs. Moreover, the legal and regulatory requirements that are, logically, specific to each country and even each region have not been addressed in any depth.

Table 1
Distribution of time dedicated to each topic.

Topic	Theoretical T.	Practical T.	Self-learning
Epidemiology	10 min		30 min.
Neurophysiological basis	15 min		45 min
Smoking-related factors	5 min		15 min
Smoking-related diseases	15 min	30 min	15 min
Diagnosis	15 min	2 h	45 min
Minimal intervention	20 min	1 h	40 min
Non-pharmacological intervention	10 min	1 h	30 min
Pharmacological treatment	20 min	2 h	40 min
Prevention	10 min		30 min

Min: minutes; T: Teaching.

Methodology

The following methodology was used for the preparation of the document. Our starting point was the body of scientific papers addressing the teaching of smoking cessation published by the different scientific societies involved in the preparation of this document.[4,8,9,13] A systematic search of the biomedical literature was then performed in MEDLINE, using the following keywords: *teaching smoking cessation for medical students, teaching smoking cessation, teaching smoking cessation for future physicians, medical education in tobacco cessation, medical education on smoking, tobacco medical school curriculum*. This search retrieved a total of 311 articles that was reduced to 98 after those related to the teaching-learning of smoking cessation in medical schools were selected. After selecting only randomized, controlled, longitudinal or descriptive studies, this number fell to 12. These articles,[2,3,5–7,10–12,14–17] together with scientific papers from the scientific societies on the teaching of smoking cessation,[4,8,9,13] were reviewed in depth for the preparation of this article.

The first draft of this manuscript was circulated among the different co-authors in the Iberian Peninsula and Latin America, who reviewed both the overall document and the specific topics that they had been assigned, as mentioned above. Their comments were included in a second version of the manuscript, which was re-circulated among the co-authors, who submitted their new contributions. A third version of the manuscript was then sent to external reviewers who were all experts in both the specific subject area and medical education methodology and had extensive experience in medical schools. Their suggestions and comments were incorporated into the final version of the proposal.

The objectives, competencies, and theoretical and practical teaching content are discussed below. Table 1 shows the time that should be dedicated to theoretical presentations, acquisition of practical skills, and self-learning by the student to achieve adequate training in each of the subjects specified.

Epidemiology

Educational objectives and associated competencies

To provide students with the knowledge and skills that allow them to acquire both conceptual and practical competencies:

1 Understanding smoking as a chronic disease that can be treated by a healthcare professional.
2 Understanding the prevalence, incidence and epidemiological factors associated with tobacco use in different human populations, taking into account sex, age, educational and socioeconomic status, and other epidemiological determinants.
3 Acquiring a clear position on the current problem of smoking.

Teaching content

1 Concept of smoking. Historical evolution.
2 Epidemiology of smoking in the Iberian Peninsula and Ibero-American countries.

A minimum of 10 min of classroom time to address these topics is suggested, supplemented by an additional 30 min of self-learning by the student.

Neurophysiological basis of nicotine dependence

Educational objectives and associated competencies

The student should understand:

1 The neurophysiological basis of nicotine dependence.
2 The different aspects of nicotine withdrawal syndrome, its neurophysiological basis, symptoms and clinical presentation, and how to identify its course.

This will allow students to acquire the basic conceptual competencies associated with this topic, and how to approach problems such as dependence and withdrawal syndrome in smokers.

Teaching content

1 Brain reward circuits. Nicotinic receptors. Characteristics and types.
2 Dependency criteria. Tolerance.
3 Nicotine withdrawal syndrome. Structural and functional basis. Clinical study. Diagnosis and assessment.

A minimum of 15 min of classroom time to address these topics is suggested, supplemented by an additional 45 min of self-learning by the student.

Factors associated with the initiation and maintenance of smoking

Educational objectives and associated competencies

Students must understand and be able to assess properly:

1 The personal, pharmacological, social, and propaganda factors that are involved in starting and continuing smoking.
2 The place of "role models" in the initiation and maintenance of smoking.

This unit will help the students acquire conceptual and practical competencies for managing the serious problem of the initiation and persistence of this addiction.

Teaching content

1 Factors associated with tobacco use: personal, sensory, psychological, social, and pharmacological.
2 Tobacco use and cessation as a process.

A minimum of 5 min of classroom time to address these topics is suggested, supplemented by an additional 15 min of self-learning by the student.

Table 2
Teaching contents: Smoking-related diseases.

1. Composition of tobacco smoke
2. Smoking and cardiovascular disease
3. Smoking and non-malignant lung disease
4. Smoking and malignant disease
5. Smoking and ENT disease
6. Smoking and obstetric and reproductive disease
7. Other smoking-related diseases
8. Passive smoking: concept and associated diseases
9. Specific instruments for clinical history and intervention
10. Diseases associated with the use of new forms of tobacco use (e.g. water pipes, rolling tobacco, electronic cigarettes, heat-not-burn tobacco, etc.)

Smoking-related diseases

Educational objectives and associated competencies

Students will be able to:

1 Identify smoking as the leading preventable cause of morbidity and mortality.
2 Understand in greater depth the diseases that are most frequently associated with active smoking.
3 Understand the concept of passive smoking and the diseases most frequently associated with it.
4 Identify the diseases most frequently associated with the use of new devices for the use of nicotine and tobacco.
5 Help the population understand the benefits associated with quitting any form of tobacco use.

Here, in addition to conceptual and practical competencies, additional skills (procedural competencies) in the use of instruments for detecting related diseases and maintaining the benefits of cessation will be developed.

Teaching content

Table 2 shows the teaching contents of this section. A minimum of 15 min of classroom time to address the theory is suggested, supplemented by 30 min of learning and consolidation of patient interview techniques and 15 min of self-learning by the student.

However, it is important to note that in-depth knowledge of smoking-related diseases must also be imparted in the teaching of the medical and surgical topics or modules of other areas of the students' academic curriculum.

Diagnosis

Educational objectives and associated competencies

The student will acquire sufficient knowledge and skills to achieve the required conceptual and, in particular, instrumental and practical competencies, associated with the following objectives:

1 Collect a complete history of the patient's smoking habit.
2 Diagnose the characteristics of smoking: the degree and type of the smoker's dependencies. Type of reward.

3 Interpret the results of the determination of carbon monoxide in expired air (co-oximetry).

This theoretical training will be complemented by practical sessions, during which students must acquire the skills that allow them to:

1 Interview the smoker in detail about his potential motivation to quit smoking, the assessment of their own self-efficacy, and their desire to make a serious attempt to quit smoking. Correctly assess previous attempts to quit.
2 Record the type of intervention performed and the result obtained in the chart.
3 Correctly collect the patient's clinical smoking history.
4 Carry out and assess correctly the main questionnaires that evaluate the different types and intensities of dependencies presented by the smoker.
5 Perform co-oximetry, and use the results not only as a diagnostic or validation tool, but also as a motivational tool.

Teaching content

1 Clinical study of the smoker.
2 Study and diagnosis of the different types of dependence in tobacco use (psychological, social, gestural, and physical).
3 Determination of carbon monoxide in expired air: concept, rationale, validation, and interpretation of results.

A minimum of 15 min of classroom time to address and discuss the theory is suggested, supplemented by 45 min of self-learning activities by the student.

Tutored practical classes must be given for the acquisition of skills (procedural and practical skills) in the diagnosis of smoking. A period of 2 h dedicated to the acquisition of practical skills in the diagnosis of smoking will be sufficient to complete the teaching objectives and achieve the above-mentioned competencies associated with this subject.

Minimal intervention

Educational objectives and associated competencies

The student will acquire sufficient knowledge to achieve the competencies associated with a minimal intervention approach, which in this case gives primary importance to procedures and practices, complemented by a solid theoretical basis:

1 The methodology, effectiveness and efficiency of "minimal intervention", and its main advantages and disadvantages.
2 Evaluation of the motivation and self-efficacy of smokers to stop smoking.
3 The patient's smoking status, the type of intervention to be performed, and the outcome.

Training in minimal intervention should continue in practical activities. During these, the student must acquire sufficient skills to:

4 Obtain a response regarding the patient's tobacco use.
5 Treat smoking in the most appropriate way for each patient.
6 Record the type of intervention performed and the outcome in the chart.
7 Obtain information from the smoker on their motivation to quit smoking and the assessment of their own self-efficacy.

Teaching content

1 Motivational interview in smokers. Concept.
2 Minimal intervention in smokers. Types. Effectiveness, effectiveness and efficiency of minimal intervention. Cost-benefit ratio.
3 Identification and resolution of barriers to minimal intervention.
4 A minimum of 20 min of classroom time is suggested to address this topic, supplemented by 40 min of self-learning by the student. A period of 1 h dedicated to the acquisition of practical skills in the diagnosis of smoking will be sufficient to complete the teaching objectives and achieve the above-mentioned competencies associated with this subject.

Non-pharmacological therapeutic intervention

Educational objectives and associated competencies

In order to acquire the conceptual, procedural and practical competencies specified in this section, students must understand:

1 The behavioral determinants for tobacco use.
2 The minimum cognitive-behavioral strategies for providing individualized, group, telephone and digital (on-line and off-line) psychological support to the smoker.
3 The content that must be delivered in each of the individualized, group, telephone or digital treatment sessions with the smoker.

Students will also complete their training in practical activities in order to acquire sufficient skills to:

4 Increase the patient's commitment to quit smoking on "D-Day".
5 Apply behavioral strategies to help smokers quit.
6 Answer the most common questions raised by smokers in these circumstances.
7 Resolve any problems smokers may have in terms of motivation, withdrawal syndrome, and treatment adherence.
8 Help the patient overcome relapse situations.

Teaching content

1 Analysis of the different types of psychological treatment to quit smoking: aversion techniques, nicotine reduction, relaxation, stimulus control, coping strategies, and behavioral rehearsal.
2 Psychological aspects of multicomponent treatment.

A minimum of 10 min of classroom time is suggested to address this teaching area, supplemented by 30 min of self-learning by the student. A period of 1 h dedicated to the acquisition of practical skills in the non-pharmacological intervention of smoking will be sufficient to complete the teaching objectives and achieve the competencies associated with this subject.

Pharmacological treatment

Educational objectives and associated competencies

To acquire conceptual, procedural, and practical skills in the treatment of smoking, students must achieve sufficient theoretical knowledge to be able to:

1 Understand the need to treat smokers who want to quit with effective medications.
2 Select medications that will help smokers quit. Understand their galenic formulations, mechanisms of action, indications, efficacy, dosage, contraindications, and potential adverse effects.

3 Be familiar with the use of drugs in the treatment of smoking in special population groups: young people, pregnant women, and patients with chronic or psychiatric diseases.
4 Identify smokers who need specialized treatment and know how to refer them to specialized units.
5 Differentiate between drug treatments that are effective and safe in smoking cessation and those that are not.

In addition, students must acquire sufficient skills during the practical activities in this area, so that they can:

6 Manage the different types of drug treatment correctly.
7 Answer the most common questions that smokers ask about different types of drug treatment.
8 Encourage smokers to use drug therapy when they are making a serious effort to stop smoking. Help them choose the most appropriate treatment in each case.

Teaching content

1 An overview of drug treatments for smoking cessation.
2 Nicotine replacement therapy: Concept. Neuropharmacologic basis. Types. Mechanisms of action. Indications. Efficacy and dosage. Contraindications. Adverse effects.
3 Bupropion: Neuropharmacological basis. Mechanisms of action. Indications. Efficacy and dosage. Contraindications. Adverse effects.
4 Varenicline: Neuropharmacological basis. Mechanisms of action. Indications. Efficacy and dosage. Contraindications. Adverse effects.
5 Electronic devices for tobacco and nicotine use: electronic cigarettes and tobacco heating devices. Lack of efficiency and safety. Results and conclusions of the most relevant studies.
6 Referral criteria to specialized smoking units.

A minimum of 20 min of classroom time is suggested to address this teaching area, supplemented by 40 min of self-learning by the student. A period of 2 h dedicated to the acquisition of practical skills in the pharmacological treatment of smoking will be sufficient to complete the teaching objectives and achieve the competencies associated with this subject.

Prevention

Educational objectives and associated competencies

To acquire conceptual and practical skills in the treatment of smoking, students must achieve sufficient theoretical knowledge of:

1 The special features of smoking prevention.
2 The different types of prevention. Prevention programs (information campaigns, educational programs, and community programs).
3 Theoretical basis for prevention campaigns in educational and healthcare centers and in the general working environment. Smoking prevention policies that are being implemented in the Iberian Peninsula and in Ibero-America.
4 Countering advertising and socioeconomic arguments and allegations of harm reduction with 'responsible tobacco consumption', and the use of electronic devices (electronic cigarettes and heat-not-burn devices), water pipes, and roll-up cigarettes.

Table 3
Teaching contents: Prevention.

1. Areas of implementation of smoking prevention campaigns
2. Preventive activities. Prevention programs
3. Legislative measures for smoking control. Information campaigns and programs. Educational programs. Community programs. Prevention programs in the work environment
4. Role of health professionals and educators in smoking control

These objectives and competencies should be shared and supplemented with those of courses and modules in Prevention and Public Health.

Teaching content

Table 3 shows the teaching contents of this section. A minimum of 10 min of classroom time is suggested to address this teaching area, supplemented by 30 min of self-learning by the student.

Academic plan

Learning smoking cessation skills can take different forms depending on the local curricula in each country and each university faculty. The preferred option would be to include most of the contents in the study of respiratory diseases and secondarily in cardiovascular diseases, and partly in other subjects or modules, such as Preventive Medicine, Epidemiology, Toxicology and/or Psychology/Psychiatry. However, another possibility would to include smoking cessation training in clinical rotations or internships during the last few years of the medical studies or, as a last option, in the form of an elective subject.

Evaluation of learning

This element is an intrinsic part of the educational process and provides a guarantee that competencies have been acquired in line with the objectives. The proposal includes a multifactor evaluation that will be conducted at the end of the various learning periods, as applicable in each center and in line with national requirements. The aim is to ascertain the acquisition of both focal and contextual knowledge, the work performed throughout the course, and the effective learning of practical aspects. The final mark, on a scale of 0–10, will derive from:

- A multiple-choice test (suggested format 25 questions), accounting for 5 points of the total final grade.
- Test consisting of short integrated questions (suggested 5-question format), which will be assigned 3 more points.

At the completion of each of these two tests on acquired knowledge, the answers will be returned to the student as they are an integral part of their learning process.

Attendance at all practical classes will be essential to access this third section:

- Practical examination of skills in simulated situations. Contribution to the final mark: 2 points.

Minimum teaching requirements

These will be highly dependent on the distribution of educational topics among the different smoking-related subjects, which may differ widely among the different countries. In principle, a permanent professor (the equivalent of a university professor in Spain or Portugal), specialized in the area of smoking (preferably a respiratory medicine specialist), assisted by at least 2 associate part-time

professors, plus minor contributions from teaching professionals specializing in Preventive Medicine, Epidemiology, Pharmacology and/or Psychology/Psychiatry.

Furthermore, the methodology for teaching all facets of the treatment of smoking will undergo quality control by specialized technical staff affiliated to the offices of the educational center (faculty or medical school) and overall university authorities, as required by law in most countries in Latin America and Spain. The elements of smoking cessation teaching should also be subject to regular evaluations by the applicable quality agencies, as occurs in other disciplines.

Conclusions

This document presents the results of the consensus reached by different experts from the respiratory medical societies in the Latin American community and the Iberian Peninsula specifying the educational objectives and competencies (knowledge and skills) and specific contents and the time that medical schools in this geographical area should dedicate to the teaching of the treatment of smoking, one of the most important social and health scourges in both the developed and the developing world.

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