To the kind attention of the President of the 10th Standing Committee (Social Affairs, Public and Private Health, Social Security) sen. Francesco Zaffini

### **Tobacco Harm Reduction: CoEHAR Research and Youth Perspectives**

Professor Riccardo Polosa and Professor Giovanni Li Volti, respectively founder and director of CoEHAR, Center of Excellence for the Acceleration of Harm Reduction at the University of Catania, present to the President of the 10th Standing Committee at the Italian Senate (Social Affairs, Public and Private Health, Social Security), Senator Francesco Zaffini, the summary document of the proceedings of the annual event held on the occasion of World No Tobacco Day at the University of Catania. The seminar, held on Thursday, May 30 at the Aula Magna of the Biological Tower of the University of Catania, was entirely coordinated for the first time by young students, PhD and resident doctors engaged in various scientific fields in the fight against smoking.

Awaiting a kind response,

Respectfully, Prof. Riccardo Polosa, CoEHAR Founder Prof. Giovanni Li Volti, CoEHAR Director University of Catania



#### Catania: No Tobacco Day 2024

On the occasion of World No Tobacco Day 2024, CoEHAR (Center of Excellence for the Acceleration of Harm Reduction at the University of Catania), in collaboration with LIAF (Italian Anti-Smoking League) and some student associations, organized the first round table dedicated to the anti-smoking battle coordinated entirely by young students, PhD and resident doctors who have distinguished themselves for their focus on the topic.

The theme indicated by the World Health Organization for World No Tobacco Day 2024 was "Protecting Youth from the Tobacco Industry's Interference".

#### **CoEHAR** mission

Following the principles of knowledge sharing and innovation that underpin its activities, the research center founded by Prof. Riccardo Polosa has chosen to define current issues by listening directly to the opinions of young people. Their voices revealed critical points, fears, and expectations, as well as the possible solutions they hope for. From the questions posed by the youngest and the topics discussed, CoEHAR representatives can now propose appropriate responses, breaking down generational barriers and combating misinformation.

#### Program of World No Tobacco Day 2024





#### Thursday, May 30, 2024 - Aula Magna – Biological Tower – University of Catania

IThe CoEHAR 2024 seminar was divided into thematic areas to allow for open and participatory debate. From the clinical practice testified by emergency and urgency medicine specialists working on the front lines in the Catania city hospitals, the discussion moved to smoking as both a psychological and behavioral addiction and its consequences on social relationships and romantic partnerships. The great support that new technologies, such as artificial intelligence, are providing in the search for effective smoking cessation strategies was also highlighted. The areas of discussion included: the approach that doctors should have towards patients who are smokers, the impact of smoking on health and physical appearance, the right diet to combat the urge to smoke, the influence in social contexts, smoking-related infectious diseases, the use of alternative products, the effectiveness of harm reduction strategies, and the need for more comprehensive information and less fake news and biases in scientific research.

#### Excerpts from the introductory speech by student Andrea Comisi



We often think of smoking as an individual choice, a personal decision, but in reality, it is above all a social and cultural phenomenon that requires a collective response. When we hear about young people who smoke or have addictions, we sometimes feel that we are not represented for who we really are. Labels are imposed on us that do not always reflect our lifestyles. Not all of us are smokers, and we do not all have passive perceptions to shape. We also inform ourselves, read, and almost always engage in dialogue. However, we have rarely been called upon by institutions and representatives of the scientific community to express our thoughts on cigarette addiction or even vaping. Of course, we cannot ignore the influence of the contexts in which we live: social pressures, behavior models, the representation of smoking in the media, and advertising are factors that play a significant role in shaping our habits and choices. But this role is not decisive. We are the generation of the label 'smoking kills,' we are the ones who see 'the villain smoking in movies, not the hero,' we are the ones who hear 'your breath stinks, why do you smoke?' We are the generation that has witnessed the fight against smoking and the damage it can cause. Today, we believe it is necessary to address the smoking problem holistically, considering not only prevention and treatment but also the culture and society in which we live. The question 'Have young people defeated smoking?' which is the title of this event, invites us to reflect on the potential of new generations to change social norms and promote a culture of health. As young people, we are not only the future; we are the present and have the power to profoundly influence society with our choices and actions. It is important to recognize that this struggle is not individual but collective, requiring support, education, and structural changes. Smoking is one of the leading causes of mortality and morbidity worldwide. Understanding its consequences is essential. We have the responsibility to promote healthy lifestyles. Prevention is the first step to reduce the incidence of smoking-related diseases.

As future doctors, we must understand the implications of smoking, which allow us to make more accurate diagnoses and provide more effective treatments. Smoking affects not only smokers but also those around them through passive smoking. Our duty is to implement habits that protect the entire population. We must deeply understand the concept of harm reduction, which can be applied to various fields of clinical research and often saves lives with innovative tools and research. Finally, we must be an integral part of this process of development and innovation, which allows us to advance more and more in the fight against smoking. We are here to represent the medicine of the future, the research, and the innovation of the present. Our proposal is not just a statement of intent but a promise of commitment to a smoke-free future."



#### **Theme 1: What do smokers admitted to the hospital for smoking-related diseases say?** *Participants:*

Dr. Francesca Cucuzza, resident in Emergency Medicine Dr. Manuela Leonardi, resident in Emergency Medicine Simone Aliotta, sixth-year medical student

Communication Campaigns, High Taxes, and Restrictive Measures: these are the cornerstones of the fight against smoking. Unfortunately, they no longer result in an actual reduction in the number of smokers in the general population. The SMOPHED study, a project of CoEHAR involving several young researchers from the University of Catania, aims to analyze the association between the health data of patients admitted to the emergency room and subsequent outcomes, specifically hospitalization and potential mortality rates, in relation to various patterns of nicotine consumption or use.

The study is enrolling about 2500-3000 patients through a questionnaire administered during emergency room admission, recording any smoking habits or the use of a specific class of electronic nicotine delivery products or dual use. The study of the economic consequences on public health from the potential decision of people who do not quit smoking to switch to non-combustible products is a significant dimension in the context of the current phase of reform of the National Health Service and its sustainability, especially given the substantial investments in the National Health Fund made in the past year.

The SMOPHED study by CoEHAR will not only evaluate exposure to different types of nicotinecontaining products but will also use the data collected to assign the NEWS score, used for emergency room admission, to detect a possible association between these tools and health outcomes and subsequent hospitalizations. Our hypothesis is that the use of electronic devices is associated with a lower NEWS score. Admission values, duration of stay in the emergency room, and subsequent negative outcomes will also be evaluated. The data can be used to contribute to the implementation of health policies that consider harm reduction strategies, with the aim of expanding the project nationally. Additionally, the results will help update statistics on emergency room visits, such as waiting times, number of admissions, and specific issues related to different centers.

# Theme 2: Can the fight against smoking be an opportunity for those pursuing scientific careers? How does smoking affect social life and aesthetic impact, like the smile of smokers?

Participants: Dr.ssa Giusy Rita Maria La Rosa, research fellow Dr. Giuseppe Carota, researcher Dr.ssa Chiara Giardina, recent graduate

In recent years, research against smoking has become multidisciplinary and multi-sectoral, thus broadening opportunities for young researchers from various fields who have distinguished themselves in prestigious scientific production worldwide. This has created significant research and personal growth opportunities for many recent graduates from universities around the world who have found professional and academic outlets in research against conventional cigarette smoking. Specifically, for example, thanks to collaboration with universities worldwide, the University of Catania has initiated scientific collaborations coordinated by young talents from Catania, allowing them to develop interesting scientific innovations and participate in international academic events.

# Theme 3: Is smoking considered not only a psychological but also a behavioral addiction? In what ways? Which smoker stories have impacted you most, and how can we help students in schools?

Participants:

Noemi Vitale, clinical psychology student Eleonora Uccelli, clinical psychology student Federica Amata, clinical psychology student Dr. Carlo Bellanca, resident in Pharmacology

We believe that young people are entirely desensitized to anti-smoking prevention efforts that list its harms because they are already aware of all the related damages. At 14, 15, or 20 years old, the possibility of getting a smoking-related disease seems distant. "Recently," the students explain, "we had the opportunity to visit many schools in the province of Catania to guide students in choosing a university.

What struck us was that, although starting from a different topic than what we are discussing today, when the students had the opportunity to talk to us in smaller groups, they opened up and showed interest in engaging in any constructive conversation." How many medical students actually hear about the approaches or tools needed to help smokers quit during their studies? Very few, as it largely depends on the instructor's sensitivity to introduce topics related to smoking cessation. Telling future patients of today's medical students that they need to stop smoking is straightforward, but explaining how to do so and supporting them in the process is much more challenging. Future doctors have few opportunities to do so because they have little information on proper smoking cessation activities.

#### Theme 4: How can artificial intelligence help smokers to quit?

Participants:

Dr. Mirko Casu, Ph.D. student in Computer Science, device demonstration Dr. Vincenzo Miracula, Ph.D. student in Physics

As you know, smartwatches, besides being very useful for detecting movements, burning calories, notifications, and calls, also have an important component provided by internal sensors capable of distinguishing between casual movements and those due to smoking. This allows technicians to use these tools to monitor not only smoking habits (how many cigarettes are smoked daily) but also the psychological stimulus and possible reactions of our vital parameters to smoking. *The application of new artificial intelligence systems to smoking harm reduction science will increasingly create innovative and effective tools to reduce the number of smokers worldwide with practical and easy-to-use applications.* 

### Theme 5: How does smoking affect our daily lives, social relationships, and romantic relationships? Are there alternative solutions?

Participants: Andrea Comisi, medical student Dr. Roberto Curto, resident in Endocrinology Dr. Giuseppe Caruso, resident in Gynecology

Unfortunately, smoking negatively impacts sexual and couple relationship. Data reported by endocrinology residents show a decline in birth rates in Italy partly due to infertility caused by smoking. For men, there is a significant decline in total sperm count. Over the past 40 years, the sperm count has nearly halved, and therapeutic options for infertile couples are often costly and stressful for both men and women. The only real strategy to achieve smoking eradication is prevention. The same alarming data is reported by gynecology residents. Smoking significantly reduces the quality and quantity of eggs, affects the fallopian tubes, and especially impacts pregnancy and the newborn's life. Smoking during pregnancy can worsen both childbirth outcomes and the child's health. Despite numerous legal prohibitions currently in place, many women continue to smoke even near gynecology departments and hospitals. Stricter enforcement of bans and more specialized training for professionals in this field are necessary.

#### Theme 6: Infectious diseases, brain damage, and solutions for lifestyle and diet. What are the alternatives?

Participants:

Antonio Crisci, medical student Dr. Eugenia Pistarà and Dr. Irene d'Anna, residents in Infectious Diseases Dr. Emanuela Tropea, research fellow Dr. Federica Gulinello, resident in otolaryngology

"We are noticing," say the residents in infectious diseases at the Garibaldi Hospital in Catania, "an increase in cases of bronchitis in young people with smoking habits who present with a slightly more prolonged symptomatology compared to more common and well-known cases. When faced with patients who are smokers, we increasingly realize that their hospital stay tends to be longer than that of non-smokers." Strongly impacting prevention or correct cessation methods could also support our work as doctors in preventive care and accurate diagnosis, as well as significantly reduce the costs borne by the national health system.

#### Conclusions of Prof. Riccardo Polosa, Founder of CoEHAR



Worldwide, despite advances in anti-smoking policies, smoking continues to be a significant public health challenge and a global concern. Governments and scientists are still questioning which tools or actions are the most effective in combating such a devastating plague. A vast scientific literature has now tangibly demonstrated that there are alternative solutions and cessation techniques that allow smokers who cannot quit on their own to reduce the harm caused by conventional cigarette smoking. Public health policies aimed at preventing and combating conventional cigarette smoking have benefited the health of thousands of people in various countries, who have reduced and, in some cases, eradicated the number of smokers. Internationally, several countries have experienced significant changes in terms of harm reduction.

It's important to note that this is not about replacing one product with another; it simply addresses a real need—the need to quit smoking—and the necessity of consumers who cannot or do not want to quit using traditional methods. Under the category of "emerging products," various alternatives are included: from electronic cigarettes, adopted in England as a tool for redefining health policies, to snus in Sweden or heated tobacco products in Japan. Alongside scientific evidence, often demonstrated by researchers at CoEHAR of the University of Catania, there are real-world examples where such products have truly changed the smoking situation.

#### Conclusions of Prof. Giovanni Li Volti, Director of CoEHAR

Today's and future doctors must have equal access to information and knowledge on tools and techniques to support smokers who must necessarily quit smoking. Simply advising patients to quit or imposing a change without support or assistance is no longer acceptable. The fight against smoking remains a battle for everyone. It's a shared objective by the entire international scientific community and all global public health systems. Ignoring that reducing the number of smokers would halve the current costs borne by the healthcare system would be even more counterproductive. Prevention aimed at young people and knowledge of harm reduction policies could also lead Italy towards a smoke-free future.



#### **Quitting Smoking**

For many smokers, simply wanting to quit smoking is not enough to succeed. Many smokers in Italy quit smoking with the help of willpower alone (the so-called DIY method), while others turn to alternative tools or solutions. According to the Ministry of Health's guidelines, the methods to be used to quit smoking in Italy are counseling and anti-smoking medications. However, the impact of these solutions is absolutely modest. There are few anti-smoking centers in Italy, and they often fail to reach individuals with specific conditions who need to quit smoking immediately and effectively.

#### Why Has Italy Acquired a Central Role in Global Harm Reduction Research?

In 2013, after years of relentless work at the Anti-Smoking Center of the Policlinico of Catania and after seeing and evaluating thousands of patients who had no desire to quit smoking, and for whom even serious illnesses were not a valid motivation to quit, Prof. Riccardo Polosa decided to evaluate electronic cigarettes as a tool to help smokers.

Thus, ECLAT was launched, the world's first study evaluating the effectiveness of electronic cigarettes in smoking cessation therapies. The study proved to be a precursor to a line of research that now involves thousands of researchers worldwide and marked an epochal change in the science of Harm Reduction. It was the first prospective randomized study to evaluate the effectiveness and safety of electronic cigarettes on a sample of 300 smokers not intending to quit. Already then, the study showed that by the 52nd week, 8.7% of smokers using electronic cigarettes had guit smoking, while 10.3% had reduced their consumption of traditional cigarettes by at least 50%. Furthermore, 73.1% of those who had quit were not using even electronic cigarettes by the end of the study. But even these data now seem archaic. Subsequent studies have shown that electronic cigarettes are up to 95% less harmful than traditional cigarettes. Over the years, non-combustion products have changed both in form and content. The goal is to make the experience similar to smoking while trying to minimize the most harmful contents, primarily the effects generated by combustion. To achieve this, continuous innovation and evaluation studies are necessary. Shared and authoritative research standards can be the solution. The Replica study, for example, led by researchers from the CoEHAR at the University of Catania, evaluated the results obtained from the most important international studies on reduced-risk products, while creating guidelines useful for the work of researchers involved in laboratory activities. The results to date set an absolute record: all replicated studies following authoritative and shared standards and using highly innovative tools establish a lower toxicity of electronic cigarettes in every aspect.

#### **Alternative Methods**

Recent technological advancements have allowed the development of a category of noncombustion alternative products, precisely because they lack the combustion process, reduce risk and offer a viable opportunity for adult smokers. These products not only have a lower risk index compared to conventional cigarettes but also have the great potential to reduce smokingrelated harm and even restore some health conditions to normal levels.

#### The Role of Nicotine

Nicotine is not the main cause of smoking-related diseases but the carcinogenic substances present in the smoke of burning cigarettes are. "You die from tar, not from nicotine." When smoking, it is not nicotine that causes cancer, lung diseases, and heart diseases, but all the other chemical compounds generated in the combustion process. Scientific evidence shows that this widely used psychostimulant is not carcinogenic, does not cause lung damage, and at normal dosages, is not a poison. Reducing harm means implementing a variety of public health interventions aimed at decreasing the impact of a phenomenon or disease on the healthcare system.

The concept is based on the recognition that all people deserve safety and dignity.

#### **Risk Reduction**

Risk reduction refers to the possibility of eliminating one of the causes (risk factor) that lead to an event, in our case a disease, for example, cancer. The most important risk factor for cancers is the smoke from combustible cigarettes. Numerous international studies have shown that electronic cigarettes can improve the health conditions of individuals with smoking-related diseases: exacerbations of severe lung diseases such as COPD (chronic obstructive pulmonary disease), cardiovascular health, diabetes, and even schizophrenia spectrum disorders.

#### The CoEHAR – Center of Excellence for the Acceleration of Harm Reduction

In 2018, after years of work in the laboratories, the team of researchers at the University of Catania led by Professor Riccardo Polosa decided to establish **CoEHAR**, the first International Center of Excellence for Research on Tobacco Harm Reduction, within the Department of Clinical and Experimental Medicine at the University of Catania.

The Center aims to contribute to the global revolution laying the groundwork for a smoke-free world through a multidisciplinary approach that disseminates strategies and tools to reduce the harm from conventional cigarette smoking. Its mission is to accelerate the efforts of international scientific research to reduce the impact of smoking on public health, thereby helping to decrease the number of smoking-related deaths worldwide. Development and technological innovation, the consolidation of existing research centers, training, education, advocacy, and international partnerships are the main activities underpinning the excellence of the CoEHAR team.









#### These are the main assets of CoEHAR's activities:

**HARM REDUCTION** is the principle on which our scientific approach is based. Using alternative and less harmful tools than conventional cigarette smoking (such as electronic cigarettes, snus, and heated tobacco products) allows for the reduction of smoking-related harm. CoEHAR studies the factors that contribute to smoking addiction and identifies the most suitable tools for smoking cessation.

**SCIENTIFIC AND TECHNOLOGICAL INNOVATION** allows us to evaluate and promote increasingly effective and less harmful solutions compared to smoking. A creative and revolutionary scientific approach enables us to study the mechanisms that regulate tobacco addiction with disruptive determination.

**INTERNATIONALIZATION** of scientific activities is the ground on which we develop the exchange of culture and knowledge. Thanks to a network of international collaborations, we are able to create a new, shared, and controlled global science that allows us to improve every application with specific solutions tailored to the needs of individual countries and territories.

#### Prof. Riccardo Polosa



Riccardo Polosa is the founder of CoEHAR and full professor of Internal Medicine at the University of Catania. According to BMC Public Health, Polosa is the most productive author in the field of research applied to electronic cigarettes and the recipient of numerous international scientific awards. Professor Polosa is the author of over 500 scientific publications, most of which are full-length articles published in internationally recognized scientific journals (H-index of 60 – Total Citation Index of 13,663 – source: Scopus). Additionally, he has authored over 30 chapters in national and international volumes and has served as Chief Editor of two international volumes published in 2007 and one in 2009.

He is a reviewer for numerous scientific journals, including Allergy, American Review of Respiratory Disease, American Journal of Respiratory and Critical Care Medicine, American Journal of Respiratory Cell and Molecular Biology, Biochemical et Biophysica Acta, British Journal of Clinical Pharmacology, Clinical Experimental Allergy, Journal of Applied Physiology, Journal of Allergy and Clinical Immunology, European Respiratory Journal, Lancet, Life Sciences, Thorax, Trends in Pharmacological Sciences, and Trends in Immunology. He has also been an invited reviewer for research programs for the British Lung Foundation, Medical Research Council, Philip Morris External Research Program, European Commission (FP5, FP6, FP7), European Respiratory Society, Dutch Asthma Foundation, Asthma UK, Horserace Betting Levy Board, Cardiovascular Therapeutics Inc., and Asthma Foundation of Western Australia.

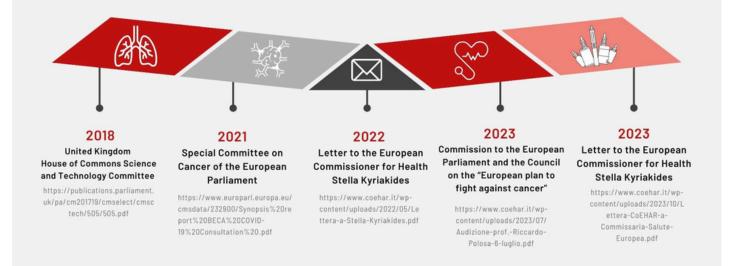
#### Government activities, letters, and parliamentary interventions

Since its founding, CoEHAR has distinguished itself for its tireless commitment to governmental activities. CoEHAR experts, primarily Professor Riccardo Polosa, have been called multiple times to intervene in policy proposals aimed at improving public health in various countries. In fact, CoEHAR has sent constructive and well-reasoned letters to various government representatives, emphasizing its interest in adopting broad-based harm reduction policies. Additionally, CoEHAR has actively participated in institutional events in different parts of the world, demonstrating its global reach. These efforts have strengthened its reputation as an organization dedicated to promoting research, innovation, and the adoption of health policies with a solid scientific foundation.





#### PARLIAMENT SPEECH AND CONSULTANTS



- 2018: United Kingdom House of Commons Science and Technology Committee

   2018: United States United Nations General Assembly 2018: Geneva

   COP8, Conference of the Parties to the WHO Framework Convention for Tobacco Control (FCTC)

   2019: United States
- 2018-Italy EURISPES\_ITALY REPORT "In search of lost responsibility. System and country, as if separated at home
- Q 2019- China Sun Yat-Sen University of Guangzhou
- 2019- India
   Indian Council Medical Research
- 2019: Italian Cottons motive of the European Standardization body for e-cigarettes and e-liquids (CEN TC437)
   CEN TC437)
   2020: Letter to European Union
   Scientific Committee on Health, Environmental and Emerging Risks (SCHEER)

- 2021- Letter to Netherlands
   Scientific Opinion: Recommendation Against E-Cigarette Flavour Bans
- 2021- Letter to European Union European Commision on Beating Cancer Plan (BECA)
- 2021- Letter to Canada
   Collective letter to the Canadian Government about Tobacco and Vaping Products Act

- 2022- Letter to Philippines
   President of the Philippines in order to approved on third Reading the Vaporized Nicotine Product Bill
- Q 2022- Letter to Romanian Romanian National Plan For Combatting Cancer

- 2022- Letter to Spain Spanish Ministry of Health
   2022- Letter to European Union
   European Health Commissioner Stella Kyriakides
- Q 2022- Letter to Bangladesh Minister of Health of the Republic of Bangladesh
- 2022- Letter to Malayasia
   Minister of Health and Minister of Finance of Malaysia
- Q 2022- Letter to Spain Spain Free Declaration
- 2022- Pakistan
   Second Round Table Conference on Scientific Evidence Towards Tobacco harm Reduction
- 2023- Letter to India Indian Government "Smoking-related deaths in India: Call to Action"
- Q 2023- Italy Italian Minister of Health: the Italian Minister retracts the ban draft
- **Q** 2023- Italy Italian Parliament, Commission to the European Parliament and the Council on the 'European
- 2023- Letter to South Africa
   Prime Minister of Parliament of South Africa
- 2023- Letter to European Union President of the European Commission Ms. Stella KYRIAKIDES



#### **Parliament Speech and** consultants in the World

FROM 2018 TO 2023

COEHAR