



CPME/AD/Brd/300803/9/EN/fr

At its Board meeting, Brussels, August 30th, 2003, the CPME adopted the following policy : **Atmospheric pollution, waste** (CPME 2003/089 Final EN/fr)

ATMOSPHERIC POLLUTION, WASTE

I. – INTRODUCTION AND GENERAL REGULATIONS

The fundamentals of medical ethics centre on the fact that doctors, who are at the service of individuals and public health, perform their duties while respecting human life, the individual and human dignity.

European doctors must be vigilant and involved in public health policy whether it concerns prevention, epidemiology or health education.

Environmental protection is an essential part of the definition of health given by the World Health Organisation.

And to a certain extent, for the body of European health professionals, particularly doctors, medical deontology extends to preservation of the environment and public ecology.

Recognition of a healthy environment raises this to the level of a right and a fundamental liberty, directly or indirectly linked to human health.

The objective of the European Environment Agency (EEA), created in 1990, relying on an observation network, is to provide the Union and the Member States with objective, reliable and comparable information, as well as the necessary technical and scientific support with regard to the air, climate, nature, water and waste.

At the Earth Summit in Rio in 1992, more than 150 states committed to uniting economic and social development policies with environmental policy.

- At the time of the Maastricht Treaty in 1992, the European Union committed to developing a sustainable development strategy and in June 2001, the European Council in Gothenburg adopted a strategy of sustainable development and economic, social and environmental revival.

Notably, the Maastricht Treaty laid down that “*Community policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Community. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay*”.

* The medical profession already applies this precautionary principle with regard to measures which may be taken in cases of scientific uncertainty about the consequences of risks, particularly for the environment.

According to this precautionary principle, the absence of certainty, taking account of current scientific and technical knowledge, must not delay the adoption of effective measures aiming to prevent serious and irreversible harm to the environment, at an acceptable economic cost.

As public authorities, doctors are therefore authorised to take any necessary and reasonable measures to counter any risks, even without possessing the necessary scientific knowledge to establish their existence.

* In the area of health doctors also apply the preventive principle, which involves the implementation of rules and actions to anticipate any effect on health. This preventive principle, applied to the environment, relies on the implementation of standards and rules which must take account of technical progress.

The Aarhus Convention of 25 June 1998 laid down the rules for public participation in decisions relating to certain activities, plans, programmes and policies on the environment, and in the drafting of these standard rules. This environmental information constitutes the basic step for taking public decisions.

For the medical profession, this is also a very important part of its own information and for its duty to inform patients and the public. Since health professionals and the medical profession effectively possess a certain scientific, clinical, therapeutic and epidemiological knowledge, it is the responsibility of care and public health workers to take part in providing proper information to decision makers and the public about the risks or harm to which they may potentially be exposed and about the effects caused by their behaviour.

- In this way, the Aarhus Convention of 25 June 1998 specifies the items of information (in any form) on the environment to be made available to the public and regarding “*the state of human health and safety, conditions of human life, cultural sites and built structures, inasmuch as they are or may be affected by the state of the elements of the environment, such as air and atmosphere, water, soil, land, landscape and natural sites, biological diversity and its components, including genetically modified organisms, and the interaction among these elements*”.

Environmental education is therefore a fundamental principle to ensure sustainable development. Whether in their initial training or in their ongoing medical training, European doctors, who implement the principles of prevention, precaution and

information are perfectly aware that they are privileged active partners in the area of prevention, diagnosis, treatment and distribution of information and awareness of environmental pollution to be spread throughout society.

The European medical profession is also well aware that the principle of integrating and taking account of the environment in public policies is essential if they want to ensure that sustainable development will enhance the value of environmental protection.

European doctors, regardless of their status and their type of professional activity, whether liberal, salaried or clinicians, claim, given their level of professional competence, a right to information on environmental policy and technology.

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II – AIR POLLUTION

Air pollution remains a public health concern, in spite of the adoption of WHO guide values and stricter emission standards.

“The guide value for air quality is the concentration below which the atmospheric pollutant should have no harmful effect on health.”

There are WHO guide values available for all pollution indicators.

Air pollution has been assessed qualitatively and quantitatively by measuring different pollutants considered as atmospheric pollution indicators.

• **Examples of atmospheric pollution indicators:**

- Nitrogen dioxide (NO₂) is produced by the high-temperature combustion of fossil fuels (carbon, fuel oil, oil, etc.). Exposure to nitrogen dioxide can cause bronchial hyper-reactivity in asthma sufferers and an increase in sensitivity of the bronchial tubes in children.
- Ozone (O₃) is a normal constituent of air and it protects living organisms by absorbing some of the ultra-violet rays in the upper atmosphere. However, at low altitude, this gas is harmful if its concentration increases too much. This is the case when a chemical reaction is produced between nitrogen dioxide (NO₂), carbon monoxide (CO) and hydrocarbons under the effect of solar radiation. Exposure to ozone is linked to a reduction of pulmonary function in healthy adults which appears to depend both on the level and duration of exposure. Daily exposure to ozone, at levels comparable to those found in large urban areas at peak pollution levels, could lead to non-smoking adults and children developing asthma.
- Suspended particles are generated by industrial fuels, transport, domestic heating and incineration of waste. They may carry gaseous pollutants into the lungs, they irritate the mucous membranes of the nose and they are probably carcinogenic. The harmfulness of these particles depends of their granulometry since the finest particles are capable of affecting the deepest airways and can even enter the bloodstream (diameter less than 13 micrometers). Thus, metallic particles can trigger inflammatory mechanisms, damage DNA and alter cellular permeability through the formation of free radicals.
- Sulphur dioxide (SO₂), is mainly released into the atmosphere by factory chimneys, thermal power stations or by heating systems. SO₂ causes inflammation of the lungs and provokes asthma attacks.

• **link between “death” and pollutants**

There is a significant link between the background level of these pollutants and the risks relating to death from respiratory and cardio-vascular causes.

• **link between “morbidity, hospital admission” and these pollutants:**

When the variations in risks relating to hospital admissions for respiratory illnesses are compared, the oldest (65 years and above) and the youngest (from 0 to 14 years) people are the worst affected and days with the worst pollution, according to these indicators, are linked to an increase in the number of hospital admissions for respiratory illnesses.

All these data on air pollution are especially known to European health professionals and doctors for their clinical and therapeutic consequences.

Air quality is one of the sectors in which the European Community has proved to be very active in recent years. A series of directives have been introduced to control the level of certain pollutants and to manage their concentration in the air.

- In 1996, the Environment Council adopted the Framework Directive 96/62/EC on ambient air quality assessment and management. This Directive updates legislation and introduces new standards for air quality, and sets out the list of atmospheric pollutants.

A procedure for the exchange of information on air quality was established by the European Community with 97/101/EC: Council Decision of 27 January 1997. The decision was taken to introduce reciprocal exchanges of information between air pollution measuring stations in the different Member States.

The Framework Directive 96/62/EC laid down the schedule for the development of Daughter Directives on a series of pollutants: First Daughter Directive (199/30/EC; Second Daughter Directive (2000/69/EC); Third Daughter Directive relating to ozone (2002/3/EC adopted on 12 February 2002).

This air pollution by industry, vehicles, urbanisation, heating and the greenhouse effect, deserves the whole attention of the medical profession as regards its medical/therapeutic consequences.

However, in order to complete their training, doctors, of all types, liberal, salaried and clinician, have the right to information on texts issued within the Community framework in order to participate effectively in the redistribution of this information in the area of training, prevention and education of patients and the European public.

This public health task would have the effect of better informing decision-makers, efficiency in public health and in economies with appreciable expenditure on health.

Currently, pollution peaks in certain seasons of the year, particularly centred around large urban areas, have allowed early diagnoses and implementation of prevention plans with messages to the population on traffic schedules and advice on professional activities and leisure.

The European medical profession has its place in any task of prevention, information and care in relation to unhealthy situations as regards medical therapeutic consequences caused by air pollution.

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III - WASTE

The sixth environmental action programme of the Commission of the European Communities lays down a series of measures aimed at reducing environmental effects of using resources as planned by the European Union's strategy in favour of sustainable development. This includes a thematic strategy on the recycling of waste and initiatives on waste prevention, particularly proposals concerning Community waste prevention objectives.

Waste management is one of the biggest environmental problems faced at global and international level. The implementation plan adopted at the World Summit on Sustainable Development in Johannesburg in September 2002 specified the adoption of new measures with a view to *“prevent and minimise waste and maximise reuse, recycling and use of environmentally friendly alternative materials, with the participation of government authorities and all stakeholders, in order to minimise adverse effects on the environment and improve resource efficiency.”*

- In accordance with the conclusions of the European Council in Gothenburg in June 2001 *“it is necessary to modify the relationship between economic growth, use of natural resources and waste production. An efficient economy must go hand in hand with sustainable use of natural resources and viable waste production...”*.

- According to the European Environment Agency (EEA), five main sources of waste are responsible for the majority of waste produced by the European Union: manufacturing industry waste (26%), extractive industry waste (29%), construction and demolition waste (22%), solid urban waste (14%) and agricultural and forestry waste which is particularly difficult to quantify. 2% of all this waste, approximately 27 million tonnes, is hazardous waste.

The European Environmental Agency also notes that the total quantities of waste continue to increase in the majority of European countries and that the volume of urban waste is significant and continuing to grow.

- The Organisation for Economic Cooperation and Development (OECD) considers that waste policy covers extremely diverse national situations. In certain Member States, tipping remains the main treatment method used for 80% or more of solid urban waste. In the past, some tips were not properly monitored and some incinerators produced toxic emissions, particularly dioxins, furans and heavy metals.

It emerges from economic assessments available that the ecological costs of emissions from waste incinerators are mainly linked to suspended particles, SO₂ (sulphur dioxide) and NO₂ (nitrogen dioxide). Then there are harmful effects (odours, noise, traffic congestion, wellbeing of the local population...).

When the directive on incineration is actually implemented, this treatment process will not figure among the main causes of dioxide emission in the European Union.

Waste affects the environment at various levels. Several solutions are proposed for waste treatment:

- Manure: source of methane emission which contributes to global warming and poses risks of pollution of ground water and rivers, not to mention odours.
- Incineration: which, in addition to the dispersal of fine dioxin particles, poses various risks of chemical pollution, particularly through carbon monoxide emission and production of clinker residues which are difficult to reabsorb.
- Recycling: which reduces greenhouse gas emissions and other pollution but presupposes efficient sorting by the public.
- Compost: which can replace fertilisers, produces methane.

To summarise, waste prevention and recycling can reduce the environmental impact of resource usage, in two ways:

1 – by avoiding effects on the environment linked to extraction of primary raw materials. For example, every tonne of recycled metal avoids the extraction of several tonnes of minerals and also reduces the effects of mining on the environment.

2 – by avoiding effects on the environment linked to processing of primary raw materials. For example, recycling of plastics can reduce emissions of aerosols and suspended particles (which have a considerable effect on human health), by avoiding the production of polymers.

At European level, all these waste prevention and recycling techniques presuppose well-drafted and calculated policies and financing. In this way, Community Directives concerning the specific sources of waste have allowed improvement of the various sources of problem waste.

- Council Directive 75/439/EEC of 16 June 1975 on the disposal of waste oils,
- Council Directive 91/157/EEC of 18 March 1991 on batteries and accumulators containing certain dangerous substances,
- European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste,
- Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT),
- Directive 2000/53/EEC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles, Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment.
- Etc.

The Commission announced its intention to submit, between now and the end of 2004, a proposal for a Directive on the biological processing of biodegradable waste.

- The Court of Justice of the European Communities gave waste a definition that aims to guarantee a high level of environmental protection, which means

that it relies on the principle whereby a scrapped material, which could be used or processed in a manner liable to affect the environment, must, consequently, be considered as waste.

As regards recycling of this waste, it is important to determine the instruments that are the most likely to provide appropriate economic incentives, but this concerns the competent technical services and political decisions for financing.

The medical profession is an expert service provider and not an agent that determines these political decisions for each Member State.

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IV – CONCLUSION ON AIR AND WASTE POLLUTION

The twentieth century ended with two clear messages:

1 – The first message is that human activity has a significant impact on the climate, the environment and natural resources. Humans play a considerable role in erosion, much more than the wind, rain and rivers. Humans affect the carbon cycle and probably as a result, the climate. They exploit the majority of ground water that exists across the continents.

2 – The second message is that our civilisation is increasingly vulnerable to natural risks since it depends more and more on sophisticated technology, costly infrastructures and that populations are concentrated in urban areas.

In order to assess the environmental effects on the health of the population, it is necessary to know how to measure risks and compare them to quantitatively express the consequences of exposure on human health.

* Today, as regards the nature of risks that can affect humans, three main categories can be distinguished:

- firstly, biological risks due to viruses, microbes and bacteria (public health notions),
- chemical risks which particularly contain asbestos, lead, glycol ethers, benzene etc.
- finally, physical risks which can be accidental but also the consequences of radiation, including radioactive radiation or electric or electromagnetic waves.

* In the coming years, the main concerns relating to air quality will probably be replaced. It will be less a matter of predicting pollution peaks and more a matter of assessing the exposure of the population in a normal situation. This is where the greatest health concerns lie, namely exposure to ozone and photo-oxidants or the role, which is still poorly understood, of small pulmonary aerosols which invade the bronchial tubes and even the alveoli.

Therefore it is background pollution with which we should be mainly concerned and here, satellite data like new technology, combined with other types of measurements, could be assimilated into prevention and forecasting models and meet the epidemiology and public health needs of the twenty-first century.

Conversely, the expected benefit of the assimilation of these instruments for local or global public health applications remains to be assessed and European doctors would like them to be integrated as soon as possible.

This concern for public health validated by these new technologies requires the implementation of information networks that can be consulted via indices, such as for example allergens and their local forecasts. Today, such networks would be a means of alert which would allow, not only sufferers to avoid attacks of respiratory

insufficiency with medically anticipated posology, but also health professionals to take part in local regional prevention processes.

Financial combat plans and conflicts of interest, the dossier of energy, pollution and waste in our societies must preserve the independence of health professionals and doctors as experts to turn to when faced with current uncertainties regarding long-term effects and knowledge of epidemiology and the pathologies of populations.

A prevention policy should also be implemented with possible reference to the precautionary principle, depending on uncertainty regarding the advantages and disadvantages for human health. These depend on many factors which must be assessed case by case.

It is therefore appropriate to inform and heighten health professionals' awareness so that they participate in the assessment of the impact on health of air pollution and of waste on the health of populations. It is appropriate to encourage their participation in the meticulous or systematic collection of epidemiological data on exposure and its effects on health.

It is necessary to provide health professionals with easily accessible documentary means and tools and to set up networks of health, prevention and epidemiology experts and specialised analysis laboratories.

We must encourage the medical profession to participate in public information which must take place in an understandable manner by means of periodic and simple education.

The results of control analyses must be considered as administrative documents, which can therefore be provided to members of the public on request.

* It is on the basis of these information, preventive and precautionary principles that, together, doctors will take part in the improvement of a policy of modern treatment of the environment and of waste in our societies.

Where commercial/industrial policy and environmental protection policy meet, there is health protection policy. European doctors are essential partners and invaluable as consultants on pollutants and pollution. However, they are service providers subject to deontology and at the service of individuals and European public health.

* On 11 June 2003, the European Commission adopted a communication on the environment and health, the aim of which is to pave the way for the production of a real strategy aiming to reduce the effects of degradation of environmental conditions on human health.

This strategy is called S.C.A.L.E. (Science, Children, Awareness, Legislation, Evaluation). The commissioners responsible, Margot Wallström (environment), David Byrne (health-consumer protection) and Philippe Busquin

(research), point out that this strategy will aim to define and perfect the necessary instruments for better identification and awareness of illnesses linked to environmental factors and their associated effects in order to then define the measures to take in the future.

From this the desire arises to unite, in a common process, options of research with those of expert sources of environmental data and those of the health sector.

For the first stage of this process, the European Commission places immediate emphasises on children and on four health priorities: respiratory diseases (including asthma and respiratory allergies), neurological development disorders, cancer and the effects of endocrine disrupters.

Today, it is known that approximately 25 – 30 % of diseases in industrialised countries are due to environmental factors and we must, as health professionals, continue our efforts to better understand and treat the causes.

But in the future, the new frontiers in medical science will be the interaction between the environment and human genomes.

Similarly, from a scientific point of view, it will be important to determine how different pollutants interact with each other and to better understand the movement of these pollutants within the environment. It will also be important to better understand how the body defends itself and reacts during these periods of pollution.

There are 157 million children in Europe and the choice made regarding this particularly vulnerable population, often spread out in the urban environment, is certainly that of a target population for the medical profession to observe any harmful effects. But at the moment, European health professionals are refusing the role of moral support. They want to be certain that European decision makers for the economy, environment and health unite their efforts and exchange their knowledge to resolve all these environmental problems, actually taking account of medical conclusions and recommendations.

At the end of this task, and from the point of view of legislation, national and international initiatives must be united while strategies already put in place must be continually reevaluated.

European doctors and health professionals are therefore bound, by their initial training and their on-going training and reinforced by their deontological duty, to participate, subject to proper information, in any preventive action such as that which seems to have been initiated by the European Commission, in the area of waste policy and atmospheric prevention policy.

However, with the ethical reservation that this prevention task is initially focused on children, European doctors reiterate that they are responsible, with the same credibility and the same authority, for the European population in its entirety, all age groups and all pathologies together.