SUMMARY REPORT

The 8th Carbon Monoxide Round Table was held on 6 November 2018 in the European Parliament. The event was hosted by MEP Linda McAvan (S&D, UK) and MEP Marian Harkin (ALDE, Ireland), and organised in partnership with the Council of Gas Detection and Environmental Monitoring (CoGDEM).

The Round Table focused on the health effects and risks of exposure to carbon monoxide (CO), which range from simple dizziness, nausea and headaches, to loss of consciousness and death. Long-term exposure to low levels of CO may also lead to permanent health effects and can increase chances of dementia and, possibly, Parkinsonism.

The event was divided in two sessions, looking more specifically at (1) first response and diagnosis of CO poisonings, and (2) the treatment of CO victims and awareness raising amongst medical practitioners and the general public. The 8th edition of the yearly Round Table gathered over 30 participants, including industry representatives, medical practitioners, researchers and national and EU policymakers. This provided an excellent opportunity for debate on the critical need for increased awareness of the symptoms and risks of CO poisonings. This is particularly important also in view of the fact that long-term health effects of continuous exposure to low levels of CO often remain undetected and are largely underestimated by national authorities. The need for European wide data collection on CO incidents featured prominently in these discussions.

After the welcome words by CoGDEM’s Director Leigh Greenham, MEP Linda McAvan provided her introductory remarks. She explained the reasons for her continuous commitment to ensure higher CO safety standards across the EU and stressed the importance of fostering exchanges of information and best practices between Member States on this matter. Exchange of information is a precondition in order to understand what can be done to “mitigate” the CO threat. Ms McAvan thanked CoGDEM, the speakers and the audience for making politicians aware of underestimated problems such as CO intoxications. MEP Marian Harkin then emphasised that CO is a largely unknown problem and awareness raising is critical. Carbon monoxide needs to be at the forefront of people’s minds, not only in households but also in places such as boats, camping facilities and churches where people least expect CO incidents to happen.
I – CO intoxications – first response and diagnosis

Dr. Hella Körner-Goebel, Medical consultant / anesthetist from Wuppertal (Germany), drew the audience’s attention to a CO incident that had happened the day before the Round Table in Düsseldorf. In this incident, 11 people from a single family were seriously intoxicated and brought to hospital for treatment. Symptoms of CO intoxication are very often mistaken for influenza or other diseases or health conditions and therefore not treated appropriately. Dr. Körner-Goebel explained the effects of CO poisoning on the heart (e.g. heart failure, pulmonary edema) and brain (e.g. headache, confusion, coma). She warned that people could live for months with low levels of exposure without identifying the problem - and thus without taking the necessary measures. In terms of treatment in Germany, hyperbaric oxygen therapy remains the fastest way to eliminate the CO from the blood. Dr. Körner-Goebel also called for a centralise database compiling all CO-related incidents in order to make the scale of the problem more visible and push national authorities to take action. In Germany, the “CO macht KO” campaign<sup>1</sup> aims precisely at increasing awareness of the threat amongst the general public and medical professionals.

Srikanth Mangalam, President of the Public Risk Management Institute (PRISM) in Canada, presented the main objectives and the 20 key recommendations from the International Carbon Monoxide Research Network (ICORN), which was formally launched in May 2018 in London. One of the underlying reasons for the launch of ICORN is that in Canada, CO is not considered a public health issue but only a technical issue. As a result, the scale of CO injuries is underestimated. This is not just a problem in Canada. According to ICORN experts, the burden of injury associated with CO is likely to be underestimated worldwide. As a result, further research is needed in order to better understand the health effects of CO on regional and global populations. ICORN’s research has fed into the ‘Global Burden of Disease’ (GBD) study, which is being carried out by the Institute of Health Metrics and Evaluation (Washington D.C.) and is expected to be published in 2019. The GBD study will include consistent data from 1990 onwards on CO intoxications globally, providing an invaluable tool to better understand the scale of the CO problem.

Glen Dale (Euralarm) and Georgina Bailey (Policy Connect) asked questions on the data collection criteria used by ICORN in this extensive research. Mr Mangalam provided some clarifications on the methodology used by ICORN, and on the type of CO-related incidents considered in this data collection process.

MEP Linda McAvan welcomed ICORN’s data collection initiative, saying it was a huge step in the right direction. A similar initiative to increase CO awareness and trigger policy action has so far been missing at EU level and only 2 European countries participate in the ICORN research so far. As Chairwoman of the European Parliament’s Development Committee, Ms McAvan also pointed out that the large majority of CO-related fatalities take place in developing countries, for example due to the use of small cooking appliances indoors. CO safety can therefore also be seen in the light of some of the UN Sustainable Development Goals (SDGs), notably goal No.7 concerning access to affordable and clean energy.

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<sup>1</sup>This campaign brings together German associations of i.a. safety technologies, firefighters, and the insurance sector.
CoGDEM’s Leigh Greenham delivered a presentation on less visible CO risks, such as on board small boats. Such boats fall outside the scope of building and household regulations, and typically have low-quality or unmaintained heating systems. Mr Greenham also stressed that “visiting” people (such as rescuers) are also at risk. CoGDEM has produced a dedicated leaflet on CO safety on board of boats and the UK’s Boat Safety Scheme (BSS) has carried out a consultation on whether to make CO alarms compulsory on board of such boats.

In the discussions that followed, Tania Vandenberghe (ANEC) pointed out that a lot of gas burners that are used on boats don’t even have the CE marking, which is another key issue to look at in order to increase safety.
II – Treatment of CO victims and awareness raising

Dr. Monique Mathieu-Nolf, Head of the Lille Antipoison Centre (France) explained that back in the 1980’s/90’s there was some denial by the French authorities about the reality of the CO threat. Having worked with the World Health Organisation (WHO) in the 1980’s, she could see that this denial was quite widespread and that various countries were facing the same problem. Unfortunately, this is still a problem today! Having collected a lot of data from hospitals during the 1980s/1990s, Dr. Mathieu-Nolf came to the conclusion that in these years, only up to 30% of CO intoxications were recognized as such. She explained that following an intoxication, most of the CO in the body is not in the blood, but in the muscles (including the cardiac muscles), and in the foetus for pregnant women. Young children are a particularly exposed population group. In 2005, the Conseil Supérieur d’Hygiène Publique de France developed National Recommendations for Victims, focusing on first response and diagnosis on site, normobaric oxygen therapy (NBO) and hyperbaric oxygen therapy (HBO). This was a step in the right direction, however according to Dr. Mathieu-Nolf further measures need to be taken, such as making CO alarms mandatory in private households, not only for tenants but also for home owners.

In his presentation on the health effects of CO, Dr. Michal Werner, Deputy Head of Anesthesiology and Intensive Care at a hyperbaric oxygen treatment centre in Poland, touched upon the different risks associated with different CO concentration levels in the atmosphere, and presented the possible neurological medium-/ long-term effects of an intoxication. According to him, CO might even have links with Parkinsonism and dementia. Furthermore, it is absolutely critical to minimise the time between direct exposure and therapy, to increase the chances of recovery. Dr. Werner also mentioned that in Poland, many CO intoxications go unnoticed because diagnostic equipment to determine intoxications is often lacking. In the Silesia region in Poland, a considerable number of CO victims are children. Many incidents involving children take place in bathrooms, where unflued gas heating devices are often installed. As children are usually the first family members to take a bath, they are also the first victims when there is a problem with the gas installation.

Dr. Werner’s presentation triggered a discussion on the differences in national approaches to hyperbaric chamber therapy. In Poland, children do not receive the same hyperbaric treatment as adults, while in France they do. Meanwhile, Germany is in the process of drawing up standards that are set to exclude children from such therapy treatment, which is something that Dr. Körner-Goebel is concerned about. In the UK, the NHS no longer promotes hyperbaric oxygen treatment for CO victims.

Julie Connolly, a PhD researcher and senior lecturer at John Moore University in Liverpool, focuses her work on the long-term health effects of CO intoxications. She started her presentation with a pyramid metaphor to describe the challenge that we face with regards to detection and diagnosis of CO intoxications. The top of the pyramid represents the acute poisonings that are recognized as such, while its base represents the continuous exposure to low-levels of CO that often goes unrecognised. We simply do not know how large the pyramid’s base is, Ms. Connolly explained. Touching upon the victims’ perspective, she explained that their testimonies are often dismissed as irrelevant, confused, too emotional, unhelpful, or just time
consuming, even though these testimonials can teach us valuable lessons about CO intoxication. With this in mind, she called for better recognition of these so-called “lived experiences” and interpretation of the poisoning, in line with the Interpretative Phenomenological Analysis (IPA) approach. The results of the PhD research are likely to be published by mid-2019.

Finally, Tania Vandenberghe, Senior Programme Manager at ANEC (the European consumers’ voice in standardisation), presented ANEC’s ongoing activities and views as regards EU standards for gas appliances and CO alarms. On the former issue, she called for the Essential Requirements of the 2016 Gas Appliances Regulation as regards CO safety to be reflected in European standards. She also stressed the importance of properly defining what a “harmful” level of CO means. While the existing standards are of course better than no standards at all, ANEC is of the view that several EU standards (such as EN 50291 for CO alarms) permit too high concentrations of CO to be emitted in the room where the gas appliance is installed. Therefore, she is of the opinion that these standards should be revised. Ms Vandenberghe also mentioned different ANEC-led CO awareness raising initiatives, such as “Don’t let the next headline be your deadline!” (directed to college and university students), and the “Be safe this summer!” leaflet.

In the discussion that followed, Geert de Cock from the European Heating Industry association EHI stressed the importance of regular maintenance of gas appliances by qualified, certified professionals as the most important measure to prevent CO incidents. Many Round Table participants agreed that reducing the risks posed by bad appliances would be the most efficient way to reduce the risk of CO intoxications. This is something that CoGDEM has also long been advocating for. It notably did so during the EU legislative discussions on the Gas Appliances Regulation (GAR), throughout 2015 and 2016. It was also mentioned that CO alarms that give a warning even for very low levels of CO would be much more costly, and therefore less affordable for large groups of consumers.


\[3\] See in particular Essential Requirement 3.4.4. (Annex I to the Regulation), in line with which “Appliances shall be so designed and constructed that, when normally used, they do not cause a concentration of carbon monoxide or other substances harmful to health, such as they would be likely to present a danger to the health of persons and domestic animals exposed.”
III - Conclusions

The 8th Carbon Monoxide Round Table resulted in a fruitful exchange of views and best practices. Experienced medical practitioners, industry representatives, researchers, and EU policymakers discussed diagnosis and treatment of CO intoxications, long-term effects of CO intoxication and the critical importance of reliable CO data for awareness and policy action. Speakers and the audience shared their concern that CO remains a largely undetected problem. It can be concluded that the intoxication incidents regularly reported in the media (especially at the start of the “heating season”) are just the tip of the iceberg. Many incidents are not reported in the media but many more may never be recognised as a CO incident.

Throughout the winter, national and local media regularly cover CO incidents and hospitalisations as a result of acute CO intoxication. While the consequences of such acute CO poisonings can be very serious, the neurological effects of continuous exposure to low levels of CO or the long-term effects of an acute poisoning are equally serious but do not receive the same attention. These problems may be affecting considerable amounts of people, but still fall largely “under the radar”. When patients do speak about their experiences they are often dismissed as irrelevant.

In order to estimate the full scale of CO incidents and to close the gap between the visible side of the acute CO threat and its undetected and unreported health consequences, further research together with consistent, continuous data collections is needed. In this regard, ICORN’s data collection initiative and Ms Connolly’s ongoing research on the lived CO experience are very important steps in order to better inform European and national policymakers and authorities about the reality of the CO problem.

Continuous dialogue and exchange of best practices amongst medical practitioners and emergency rescue services is also critical to ensure the best possible treatment of CO intoxications. Hyperbaric oxygen therapy is recognised across Europe as the most effective way to treat CO but in some countries this treatment is only available for adults. Emergency response also varies across Europe and diagnostic equipment to determine intoxications if often lacking.

Finally, the gas appliance industry and the installation sector could also make important contributions to CO safety. By ensuring professional installation and regular maintenance of gas devices, many incidents
and injuries caused by long-term exposure to low levels of CO could be prevented. Gas installations should always be accompanied by a CO alarm. While a regular CO alarm does not warn in case of low levels of CO exposure (such alarms would be too costly), they can be trusted to save lives in case of an acute threat.

Key themes for follow-up could be summarised as follows:

- The upcoming ‘Global Burden of Disease’ study and global CO data collection initiative should be brought to the attention of policymakers and authorities. It could also serve as a good basis for further discussions within CoGDEM’s network;
- Data collection and exchange is necessary to comprehend the full scale of the CO problem;
- Exchange of best practices could serve to improve treatment of CO victims (especially children) and emergency response across Europe;
- Encouragement for European CO experts, medics and researchers to join the ICORN initiative;
- To the extent possible, the results of ongoing research work (by i.a. ICORN, and Ms Connolly) on the health effects of CO should be used for awareness raising;
- Following next year’s EU elections, CoGDEM will explore ways to maintain and further raise the momentum around the importance of CO safety rules and standards to prevent CO poisonings at EU level.