

CAIR4HEALTH

Workshop June 19th 2008 Brussels

Fondation Universitaire Stichting, Rue d'Egmontstraat 11, B-1000, Brussels

Participants: Ranjeet Sokhi (UH), Jane Newbold (UH), Jaakko Kukkonen (FMI), Mia Pohjola (FMI), Bert Brunekreef (UU), Dick van den Hout (TNO), Mtinkheni Gondwe (TNO), Nicolas Moussiopoulos (AUTH), Lia Fragkou (AUTH), Denis Sarigiannis (JRC) Fintan Hurley (IOM), Johannes Hendricks (DLR-IPA), Martin Williams (DEFRA), Andrej Kobe (DG-Env), Claus Bruning (DG-RTD), Tuomo Karjalainen (DG-RTD), Peter Rombout (RIVM), Volker Klotz (U of Stuttgart), Keith Vincent (AEA), Christian Farrar-Hockley (Env-Health), Alessandro Bertello (DG-Env), Sashia Buchholz (Lippmann), Dragomira Raeva (EEB).

IMPORTANT DATE: Next WORKSHOP December 3rd 2008

1. Welcome and Introduction

RSS welcomed the participants and introduced the partners of CAIR4HEALTH.

RSS went on to explain the scope and organisation of the project, as well as its contribution in suggesting future research areas in the field of air quality and health. RSS also announced that the final C4H Workshop will take place on the 3rd of December in the same venue in Brussels.

2. Presentations given by Partners:

JK: Analysis of air quality research and gaps – implications for health.

DvdH: Linking air quality research with policy needs.

BB: Air quality and health research – future needs.

DS: Integrated environmental health impact assessment with regard to air quality.

Comments and General Discussion on Partner's Presentations:

Nicolas commented on the role of EEA as an independent instrument that also brings into cooperation many research institutes and groups.

Peter Rombout commented on the opportunity that C4H introduces into development of a framework for an integrated system on air quality and health management that would take into consideration both research and policy needs. PR also felt that C4H was too broad and should focus on specific areas.

Fintan Hurley agreed that the presentation made by DvdH was useful as it explained the process of knowledge dissemination between research and policy makers, and how feedback is made along this chain.

Martin Williams felt that a better link between top policy makers and basic research is needed.

Claus Bruning – commented after JK presentation of the importance of measurements of ultrafine particles and maybe new instruments for online measurements are needed.

Jaakko Kukkonen responded to this by explaining that there are plans for supersites in 10 to 20 places in Europe.

Denis Sarigiannis – commented on the importance of linking satellite data to actual data on monitored particle count.

Fintan Hurley commented that there is a need to look at policies in different sectors and effects on health. Morbidity data should be collected individually but it is often not available. More attention is needed to policy making process.

Peter Rombout – wanted to know why the threshold for O₃ was re-introduced?

Fintan Hurley – response was that although there was not a strong case for a threshold for O₃, consultation work suggested that without a threshold on O₃ the levels of NO₂ may seem beneficial in cities.

Nicolas: Had a question on comparing probabilities and how this equates to policy makers having exact numbers.

Fintan response: every model is wrong but the important thing is how wrong? How can we include some good evidence (not necessarily statistically good) along with the proven?

Nicolas Moussiopoulos also mentioned the importance of two-way coupling in order to get high resolution results. This should refer to the dynamics and not only to chemical processes. The main objective should be to achieve the same level of quality at all scales.

Ranjeet Sokhi questioned whether there is a greater need for integrated models? Maybe interlinked models or one modelling framework with nesting capabilities. This was in reference to how global models could be integrated with regional or urban models requiring higher resolutions.

Johannes Hendricks response: It is complex to have an integrated model and difficult to realise but transferring information from different scale models works. It is important to reach some degree of quality with each model or errors can occur.

Martin Williams highlighted the importance of emphasising the uncertainty over the toxicity component in PM and also to question how harmful are long exposures to 'low' levels of ozone and that exposure reduction targets are important (see Laden et al 2006). MR suggested using this concept instead of limit values and that now may be the time to evaluate effectiveness of existing policies.

Andrej Kobe explained about the new Directive 2008/50/EC published in the Official Journal 11 June 2008 which merges the old Directive and Daughter Directives (not including 4th Daughter Directive yet). AK described the new target and limit values, exposure (based on national average exposure indicators) and derogation provisions where extra time is allowed to meet limits.

Three key areas to focus on:

Need to show: (1) What does work

(2) Guidance on what needs to be done

(3) Is it applicable throughout the Union?

The next review will finish in 2013. In 2009 there will be a review of the sustainable development strategy. Nanoparticles linked to industry are becoming increasingly important and need some serious consideration.

Key documents: Mid-term review of action plans – see what the ministers say. These documents should be read as they give direction for areas of concern and future projects.

Experts invited to make some specific comments

Peter Rombout

PR suggested that C4H should develop a framework to prioritise the questions, but he felt the main priorities should be:

- What is the health risk of being exposed to air pollution?
- What can we do about it?

From the presentation by DvdH this morning, the question of ‘What is the bottom line’ i.e. what are the risks, was posed. How would you spend your Euros to reduce risk? One possibility was the use of scenario calculations looking at what air quality will be like in 10 years time. Other questions raised included: What is needed to make air quality better? What abatement measures are needed? A conclusion was that may be something new has to be developed by novel research.

Fintan Hurley

A number of questions have been identified here but how do we choose between them? What would make an important change and what would make a smaller change? Which are achievable and at what cost? We need to make room for emerging issues. The effect of long-term exposure is driving things and it is this exposure that is important because of its public health potential impact. Particles of different sizes have different effects but what is the most appropriate way of measuring particles related to health?

Martin Williams

There are two areas for consideration. From a policy point of view – what do I want to know from a research base to make policy decisions easier? The harmful component of PM is the most important. What is the science of the effects of PM? Mass closure is needed on particles which are harmful.

Second area is about accountability studies. This is increasingly important. Studies on long-term exposure to particles and issues related to limit values. Directive talks of significant exposure of population to limit values. What is the real average time linked to exposure?

If we know all these things what do we do about them? Should we throw out technology and focus on the need for behavioural changes for example in the way we drive cars. Politicians do not like to impose these types of changes. There is one hope however and that is to link these changes to climate change but this may involve big infrastructure changes.

Andrej Kobe

I agree with Martin on particle composition and toxicity. This is crucial information to have. If you had this information – how would it translate into policy?

Concerning accountability studies, I do not agree with Martin that the EU would have to change their approach. We need to stick with approaches that are working at the moment – simple enforceable rules. These are the tools the EU will use in the near future. We need more information on components. It would be good to have specific limit values of components, but a constraint here is that instrumentation is too expensive to apply so maybe an alternative methodology is needed. If we get the information we need we still face the difficult question of how do we use this information. This is our serious challenge.

Claus Bruning

In terms of transport research, the Quantify report is one but there are other reports on transport. Where will we be 10 years after this report? Are we prepared to take particle size on board? Do we have the monitoring equipment in Europe? Now the nanoparticle is there in the health context, how is this being looked at? The integration of air quality with climate change is important. Maybe all these need to be put into a programme.

General Discussion

Peter: Can we start to look at exposure and a risk based map approach in relation to population groups?

Martin: You can do it but does it mean anything and is it right? Modelling results can do anything. But how good is our current understanding of risk?

Fintan: If you are trying to get broad numbers Europe wide using small spatial scale – could get different answers.

Denis: Do not agree. Use generic studies – get average. Large scale and small scale do not get the same results. If you go down to fine scales – they will be more precise.

Peter: Episodic events cause the problem and can accumulate in the end to produce a chronic effect. But the question is what is causing the risk? Should we be abating PM and if so, why are we doing this? Should we be abating the causes? We need limit values but at the same time we have to be certain they are effective.

Data are emerging that PM10 concentrations are fairly stable but the PM2.5 part is increasing so the limit values are important.

Claus: The number of ultrafine particles emitted to the atmosphere is going up.

Andrej: We need to do better, but I do not agree that we are not doing it right. Limit values through exposure are trying to address sources. We have tried to do this with compromise. The limit value is not the ultimate target, for example if there is a known local source that is producing high emissions this should be regulated, although overall air pollutant concentrations may fall within the limit value for the whole area.

C4H partners Responses

Denis: Limit values and risk base are not a contradiction. The real risk of pollutants could help set better evidence based levels. Maybe it is time to rethink and try to give enough resources to more risk-based assessment.

Bert: Attention should be focussed on the different sources of PM. Improvements should come from identifying the sources and source apportionment. This source apportionment should be linked to health effects with the three different classes of PM being treated as separate pollutants but subject to the same limit value as different limit values are not workable. Link the studies of the three particle sizes to health related issues.

Jaakko: PM is not the best concept as it is a mixture so should be treated separately as each fraction has a different health effect. Every primary and secondary PM has a different line of effect. Each forest fire is different and even there is a difference between fresh and old smoke. Combined exposure data on locations and sources would be more useful. The finer resolution model the higher the health impact as population density varies over a country but there is a higher density of population in the urban areas.

Nicolas: I support source apportionment but it is important to understand as accurately as possible the chemical analysis. An improved knowledge base is needed concerning the chemistry occurring in turbulence. We need to strive to give a margin of validation to statements.

END OF WORKSHOP