Introduction to COST-Action No. 15129: **DiMoPEX (Diagnosis, Monitoring, Prevention of Exposure Related Non-Communicable Diseases)**

**WG6: Burden of Noncommunicable diseases and clinical diagnosis.**

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Aims

WG.6 Burden of Noncommunicable diseases and clinical diagnosis.

Objectives: Non-communicable diseases comprising cardiovascular, lung, and neurological diseases, diabetes as well as cancer, represent an increasing health threat to European and world-wide societies. They do not only cause premature deaths and increased morbidity, but also have a significant economic impact. Cost-effective and evidence-based interventions and tools to prevent and control various non-communicable diseases include:
- to reduce causative exposures/risk factors
- early detection and management of respective disorders
- Surveillance of endangered populations to monitor trends in risk factors and diseases.

Such interventions are feasible; they necessitate a paradigm shift, i.e. from considering each singular exposure to addressing collectively disease clusters in an integrated manner ("exposome"), also from a separated clinical to a public health approach guided by the principles of universal access and social justice, and from action expected from the health sector alone to a broad-based, coordinated and intersectional whole society access and social justice, and from action expected from the health sector alone to a broad-based, coordinated and intersectional whole society

An integrated approach targeting all major common risk factors is clearly the most cost-effective way to prevent and control the common non-communicable diseases with the aim of reducing premature mortality and morbidity of chronic non-communicable diseases, but also the need to integrate primary, secondary, and tertiary prevention, health promotion and related programs across sectors and different disciplines.

In order to enhance interdiscipliary cooperation a clinical network on exposure-related diseases will cooperate with DiMoPEX partners.

Description of work

- to carry a systematic review of literature, evaluating and defining best evidence reporting implication of non-communicable disease for the diagnosis of chronic disorders.
- to contribute to the training and teaching activities of the DiMoPEX network
- to develop common diagnostic scheme guidelines to aid physicians and public health workers to make use of the best evidence.
- to integrate non-communicable diseases intervention initiatives in the health system based on primary health care
- to encourage partners to initiate joint collaborative clinical case studies and field studies of environmental/occupational disorders
- to disseminate knowledge in joint publications, protocols and case reports
Recent estimates

• 155 000 lung cancer and 23 000 mesothelioma cases were attributable to asbestos in 2015 globally
  
  *Forouzanfar MH et al Lancet 2015; 386: 2287–2323*

• The total burden of lung cancer cases attributable to work-related exposure to respiratory carcinogens in Europe: 32 400 cases per year
  
Systematic reviews I

- WP 6 participated in the IMExAllergy review
WP 6 planned another review

New-onset asthma and COPD and anthropogenic environmental air pollution

### Systematic reviews II

#### WP 6 planned another review

- New-onset asthma and COPD and anthropogenic environmental air pollution

#### Studies of interest

**Specific for exposure ("Intervention"): Substances/pollution vs systematic review**

**1. Direct effects of anthropogenic pollution (including mixed exposure)**

- E.g., exposure to particles, NO2 from fossil fuel and wood combustion
- Excluded: Hazardous substances exclusively present in workplaces/no significant amount in the general environment

**2. Direct effects of secondary anthropogenic (anthropogenic by human responsibility/impact, not by source)**

- E.g., exposure to particles and NO2 from wild fires (climate change), release of natural allergens into environmental air (industry)

**3. Effects due to anthropogenic AND natural pollution**

#### Work packages and groups from Barcelona

- Methodological preparations:
  - Harald, Torben, Xaver, Maria Albin

- Occupational/athletic population and aspects:
  - Xaver, Joao, Diana, Maria Albin (7), Astrid (7), Harald

- Gases: Pavlos, Anastasia and Jeroen

- Pollen + fungi: Torben, Thanos and Ozlem

- Interactions of chemicals/gases, with respiratory allergy (pollen, fungal):
  - Xavier, Jacob, Per, Maria Cruz, Torben, Thanos, Ozlem, Astrid, ...

- Interactions of chemicals/gases, asthmatic:
  - Xavier, Jacob, Per, Maria Cruz, ...

- Methodological preparations:
  - Harald, Torben, Xaver, Maria Albin
Spectrum of exposures and diseases

Remaining «classical» exposures and diseases

• Asbestos:
  – A collaboration has started btw AU Sigsgaard, Barcelona Cruz & Berlin Baur on the use of asbestos body measurements as proof of exposure to asbestos,

• Mining industry

• Occupational cancer

• COPD

• Asthma and dermatitis

• Pneumoconiosis

• Hypersensitivity pneumonitis
Spectrum of exposures and diseases II

Selected recent exposures and diseases

• Urban air pollution
  – Heating and diesel exhaust
  – Lung and heart disease
• Silica
  – Denim sandblasting and new
• Coal
• Bioaerosols
  – Biotechnology and sewers
• Nanomaterials
• Cleaning agents and desinfection
• Diacetyl (2,3-butanedione)
• indium-tin oxide (ITO) workers
Possible interventions

• Education
• Exposure reduction or cessation (primary prevention)
• Health surveillance and early diagnosis (secondary prevention)
• Monitoring prevalence of risk factors and diseases
Burden of Noncommunicable diseases and clinical diagnosis

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