List of granted and currently running projects by external researchers

(Status: 6 November 2017)

Principal investigator	Organization	Title of the project	Start of the project
D. Richardson	Department of Epidemiology, University of North Carolina, Chapel Hill, USA	PUMA – Pooled Uranium Miners Analysis	May 2016
Outline of the Project	The project PUMA (Pooled Uranium Miners Analysis) is a worldwide pooling project, including miner cohorts from the EU, US and Canada. It involves analyses of available data that have been collected for the purposes of prior epidemiological studies. The combined study cohort encompasses more than 100,000 miners. The proposed collaborative pooling of data will yield results for cause-specific mortality risk analyses with greater precision than those obtained in any single cohort included in the collaboration. In detail the following specific aims will be addressed: - Comparison of causes of deaths in miners with the general population. - Radon exposure and risk of solid cancers other than lung. - Radon exposure and risk of haematologic cancers. - Radon exposure and risk of circulatory diseases. - Radon exposure and risk of respiratory diseases. - Lung cancer risk at low exposure/exposure rates of radon. - Temporal effect modifiers for radon-associated risk of lung cancer. - Lung cancer and combined effects of radon and smoking. - Health effects of gamma exposures in uranium miners. - Assessment of lifetime risks associated with radon exposure. Involved institutes: BfS - Federal Office for Radiation Protection, Germany; CCO - Cancer Care Ontario, Canada; IRSN - Institute for Radiation Protection and Nuclear Safety, France; NIOSH - National Institute for Occupational Safety and Health, USA; SURO - Radiation Protection Institute, Czech Republic; UNC - University of North Carolina, USA; USC - University of Southern California, USA; UCSF - University of California, San Francisco, USA		

Principal investigator	Organization	Title of the project	Start of the project
M. Möhner	Federal Institute for Occupational Safety and Health (BAuA), Berlin	Nested case-control study on the risk of acute myocardial infarction in uranium miners	1. September 2015
Outline of the Project	In a nested case-control study based on data from the German Wismut cohort of uranium miners the relationship between typical exposures in uranium mines and the risk for acute myocardial infarction (AMI) will be investigated, taking into account information on potential confounders.		

Principal investigator	Organization	Title of the project	Start of the project
L. Zablotska	University of California, San Francisco	Pooled analysis of mortality among German and Canadian uranium millers and processors	1. January 2014
Outline of the Project	The project aims to examine radiation-related risks of mortality from site specific-cancers, with special attention to cancers of the lung and bronchi, leukemia and lymphoma, bone, liver and kidney cancers, as well as non-malignant respiratory, renal and cardiovascular diseases in the pooled analysis of Port Hope and Wismut uranium milling and processing workers (n=6,806), separately and together for RDP internal exposures and γ-ray external exposures. Furthermore it should determine the effects of exposures to radium and silica dust on the radiation-related risks of mortality in the pooled analysis of Port Hope and Wismut uranium milling and processing workers. The project should also investigate radiation-related risks of mortality in the exploratory analysis of a cohort of women involved in uranium milling and processing at Port Hope and Wismut (355 and 270 workers, respectively).		

Principal investigator	Organization	Title of the project	Start of the project
H. Küchenhoff	Ludwig-Maximilians-Universität München, Department of Statistics, Munich	The exposure-lag-response association between occupational radon exposure and lung cancer mortality	1. March 2016
Outline of the Project	The aim of this project is to apply the DLNM (*distributed lag non-linear models*) framework to the German uranium miners cohort (Wismut cohort) to derive estimates of exposure-lag-response associations between occupational radon exposure and lung cancer mortality. The specific objectives are to characterize the exposure-lag-response associations between occupational radon exposure and lung cancer, assessing the shape of the exposure-response relationship and its lag structure. Furthermore, it aims to extend the results obtained with traditional approaches (previously adopted to model the lung cancer risk of time varying exposure to radon and applied to the Wismut cohort) and to compare the results with those previously obtained using the data from the CPUM (*Colorado Plateau Uranium Miners*) cohort. Additionally, the DLNM methodology will be extended to excess relative risk (ERR) models and the results will be compared with the current implementation in log-linear models. Project in collaboration with C. Kaiser, Helmholtz Zentrum München, and A. Gasparrini, London School of Hygiene and Tropical Medicine.		

Principal investigator	Organization	Title of the project	Start of the project
C. Kaiser	Helmholtz Zentrum München, Institute of Radiation Protection Germany	The exposure-lag-response association between occupational radon exposure and lung cancer mortality	1. March 2016
Outline of the Project	Project in collaboration with H. Küchenhoff, LMU München, and A. Gasparrini, London School of Hygiene and Tropical Medicine. See project description above.		

Principal investigator	Organization	Title of the project	Start of the project
A. Gasparrini	London School of Hygiene and Tropical Medicine	The exposure-lag-response association between occupational radon exposure and lung cancer mortality	1. January 2014 (extended)
Outline of the Project	Project in collaboration with H. Küchenhoff, LMU München, and C. Kaiser. Helmholtz Zentrum München. See project description above.		

Principal investigator	Organization	Title of the project	Start of the project
H. Bijwaard	RIVM-National Institute for Public Health and the Environment, The Netherlands	Models of lung cancer induced by radon and smoking in the WISMUT cohort	01. January 2011
Outline of the Project	For this project current mechanistic modelling of the WISMUT Alpha Risk cohort (35,084 miners, 461 lung cancer deaths) is extended using the larger and updated WISMUT cohort that is currently available (58,987 miners; 3,016 lung cancer deaths). There are three main reasons for doing this: (1) the inclusion of more data and the increased lung-cancer mortality should lead to a better determined model, (2) the extra data also include miners employed before 1955 when radon concentrations in the mines were high: this information could better constrain those model parameters that mainly impact the model in the high dose regime, and (3) the imputation of smoking data is based on a case-control dataset that largely consists of miners with first employments before 1955 and it is therefore more justified when applied to a cohort with similar employment years (and exposures). If required by the statistical power of the data, the model will be extended to include mechanisms for non-targeted effects. The final model should allow for the estimation of lung-cancer risks of indoor and occupational radon and the influence of smoking on these estimates.		