The Dutch Paediatric CT Study is an ongoing nationwide retrospective record-linkage cohort study regarding the risk of leukaemia and brain tumours due to radiation exposure from paediatric CT scans.

1. Objectives
   - Risk of leukaemia and brain tumours from paediatric CT scans
   - Patterns of CT scan use and associated radiation dose in Dutch children in the past decade

2. Plan of Investigation
   - Study design: nationwide retrospective record-linkage cohort study
   - Population: children with at least one CT scan in the period 1983-2012 while under the age of 18 years
   - Exposure: bone marrow dose and brain dose from CT scans
   - Outcome: incidence of leukaemia and brain tumours following first CT scan

3. Data collection
   - Information will be obtained from radiology departments of all 59 Dutch hospitals regularly performing paediatric CT scans covering the calendar period since the introduction of digital archiving until 2012
   - For each archived paediatric CT scan, the patient's medical record number is included in the data collection part and the radiologist's report, as well as technical parameters for organ dose estimation will be collected
   - We expect to enrol more than 100,000 children with about two CT scans per child on average

4. Radiation protection
   - The findings of this nationwide retrospective record-linkage study will be of great interest for radiation protection purposes and will provide empirical evidence to suitably inform doctors, patients and their parents whenever a CT scan is considered. Moreover, the results will be informative for clinical guidelines and protocols on diagnostic imaging

Table 1: Characteristics of 12,456 patients from the Academic Medical Center Amsterdam who received at least one CT scan in the period 1983-2012 while under the age of 18 years

Table 2: Number of CT scans by sex and body part among 12,456 patients from the Academic Medical Center Amsterdam who received at least one CT scan in the period 1983-2012 while under the age of 18 years

Table 3: Estimated radiation doses to the red bone marrow (RBMM) and the brain by scan type and age at CT scan for 150 series with sufficient data from 249 paediatric CT scans

Poster References:

Be part of the European Society of Radiology’s radiation protection initiative, become a Friend of EuroSafe Imaging.  www.eurosafeimaging.org