

## **Exposure of the Swiss population from radiological examinations: a prospective study to estimate the examination frequency**

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### **Introduction**

Surveying the population exposure by medical x-rays is a useful tool in radiation protection. Among the main objectives of population dose assessments are: “1) to observe trends in the annual collective dose and the annual average per caput dose from medical x-rays in a country with time; 2) to determine the contributions of different imaging modalities and types of examination to the total collective dose from all medical x-rays.” In Switzerland a survey on the exposure of the population by medical x-rays in 2008 is being conducted. It updates the results obtained in 1998 [1] and 2003 [2]. The aim of this work is to explore the appropriateness of the Tarmed coding system as an automatic tool for surveying the frequency of diagnostic and interventional examinations in Switzerland.

### **Material and Methods**

The subset of invoices corresponding to a two month period activity (oct. and nov. 2008) of the Radiological Department of the Lausanne University Hospital (CHUV) has been analyzed (16'000 invoices). For each Tarmed code or group of Tarmed codes a radiological examination was defined.

### **Results**

The use of Tarmed code allows to obtain the frequency of the radiography examinations with a reasonable precision. In adults for 19'500 radiographies the percentages of abdomen, chest and lower limbs were 37%, 28% and 16% respectively. The interpretation of the CT examination statistics is more cumbersome but the use of several codes to define a CT acquisition allows also establishing the frequency of this type of examinations. Concerning fluoroscopy examinations, an almost case per case analysis is required to identify precisely the examination performed.

### **Discussion**

The use of Tarmed codification is a very convenient way to establish the frequency of the most common examinations (radiography and CT). For fluoroscopy special care must be taken to ensure the reliability of the approach. However, these preliminary results demonstrate that the tools developed to establish invoices in medicine may be used to monitor the exposure of the Swiss population from the radiological examinations.

### **References**

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- [2] Aroua A, Vader JP, Valley JF and Verdun FR. (2007) Exposure of the Swiss population by radiodiagnosics: 2003 review. Health Phys 92(5):442-8.