



Frequency of Medical X-ray Examinations in Iceland in 2013

Petursdóttir N., Gudjonsdóttir J., Einarsson G.. Icelandic Radiation Safety Authority, Reykjavík, Iceland, nelly@gr.is

GEISLAVARNIR RÍKISINS
ICELANDIC RADIATION SAFETY AUTHORITY

Introduction

The Icelandic Radiation Safety Authority (IRSA) collects data about all medical x-ray examinations performed in Iceland and has done so every 5 years since 1993. In this poster the most recent data, from the year 2013, is presented and compared to earlier data.

Medical diagnostic imaging; medical x-ray, nuclear medicine (NM), magnetic resonance imaging (MRI) and ultrasound (US) is performed at 38 locations in Iceland; in hospitals, health care facilities, private clinics and research facilities around the country. Information and imaging files of these examinations are stored in 6 different RIS/PACS systems which are located at the largest imaging departments and research facilities.

Information about frequency of examinations is important when evaluating population radiation doses from medical procedures and in organizing radiation protection work.

Materials and methods

Data about medical x-ray examinations was collected along with available data on all diagnostic examinations in Iceland, excluding dental imaging. All locations, performing medical x-ray and NM, were asked to send information about all examinations performed in 2013. Information from each department or facility included location within the department, imaging modality, examination code for of the examination along with the age, sex and nationality of the patient.

The frequency of medical x-ray examinations was calculated and compared with previous results, and for reference the number of NM and nonionizing examinations (MRI and US), plus the total number of diagnostic medical examinations was calculated.

The proportion of conventional x-ray, interventional and angiography, computed tomography, mammography, chiropractor and research examinations was calculated.

Results

The collected data is believed to cover about 99% of all performed examinations performed at all imaging departments in the country. The total number of medical x-ray examinations in Iceland was 243.006 (746,2 per 1000 of population) divided between modalities as shown in Figure 1.

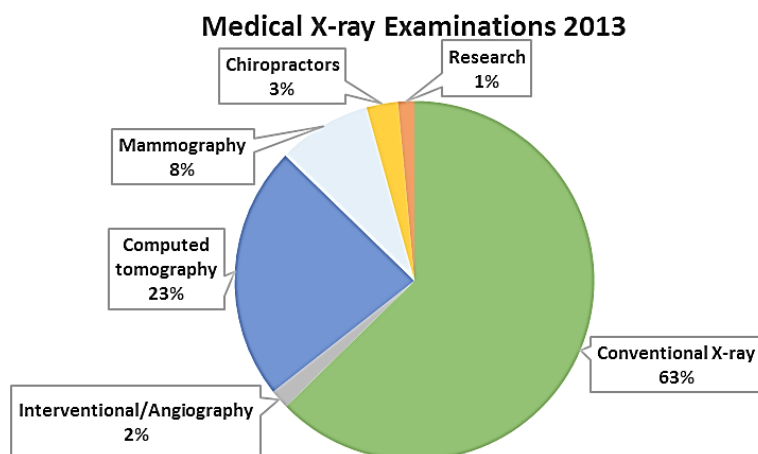


Figure 1. Medical X-ray examinations in Iceland 2013, divided between modalities

The frequency of medical x-ray examinations has decreased from 2008, see Table 1.

	Frequency per 1000 population in the year 2008	Frequency per 1000 population in the year 2013	Change in percentage
Medical X ray	807,9	746,2	-8%
MRI	73,4	76,5	4%
Ultrasound	94,5	101,5	7%
Nuclear Medicine	11,6	6,1	-47%
Total	987,4	930,3	-6%

Table 1. Frequency per 1000 of population change

Conventional x-ray examinations are fewer now than in 2008 (decreased by 14,5%), but the number of CT examination has increased (by 20%), interventional and angiography examinations has increased (by 20%). Mammography examinations has decreased (6%). Chiropractor examinations have increased (400%). Research examinations has decreased (7%).

Figure 2 shows the change in the number of medical x-ray examinations during the last two decades.

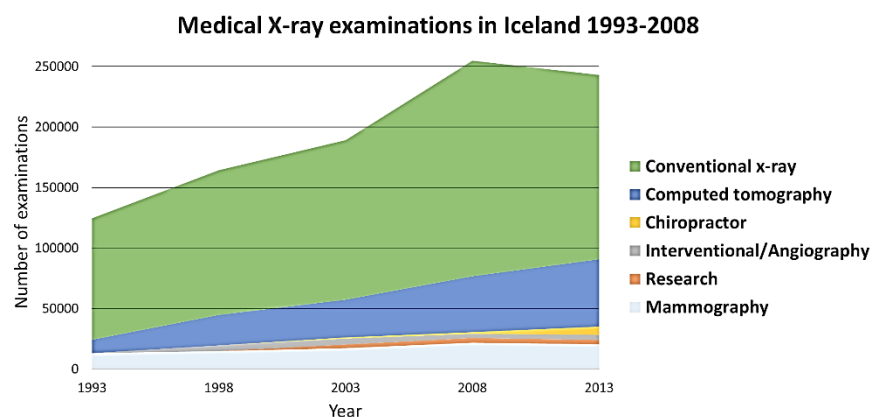


Figure 2. Medical X-ray examinations in Iceland 1993 – 2013.

The frequency of medical examinations in total (x-ray, NM and nonionizing) has decreased from 2008, as shown in Table 1.

The number of MRI examinations has increased (by 7%) and Nuclear Medicine examinations has decreased (by 44%). NM is still mostly based on the use of ^{99m}Tc and there is no PET facilities in the country.

Conclusions

Frequency of medical x-ray examinations has decreased since 2008 and the frequency of medical examinations in total has also decreased, probably due to the financial crisis in Iceland since late 2008. There is a small decrease in the total number of medical x-ray examinations mostly because of a substantial decrease in conventional x-ray examinations. The numbers of CT, Interventional/Angiography and Chiropractor examinations are steadily increasing. Even though the inclusion of a one very active Chiropractic practice has led to an increase of 400% of these examinations in this time period they are still a small percent of the total number of examinations. Survey of patient radiation doses is already under way.