

ERPAN SURVEY 2013 - Norway.

Topic : Blood Irradiators

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Background:

- In 2011 – 22 July we experienced a major terror attack on government and governmental /public infrastructures.
- Many safety/security - reports followed – **Recommending enhanced security for important objects/buildings/installations.**



Departement of Health



Entrance area to the Government building



The car with the bomb was located just outside of the entrance area



Blood irradiators with high activity source – A possible target ?

- A few year earlier (after the Twin Tower attack in New York 2001) a study were done in Norway with regard to the possible consequences of a bomb attack on a blood irradiation installation in a hospital (The research establishment for the armed forces in Norway).
- The result were classified “Secret”.

Testing the regulatory instrument - substitution

- A major hospital applied for licence renewal of a blood irradiator with a high activity radioactive source in 2012.

In our regulations there is an article regarding substitution:

- Section 22: Selection of radiation source, duty to consider substitution

When using ionising radiation the undertaking shall assess alternatives to the use, including the feasibility of methods which do not involve the use of ionising radiation. The undertaking shall in such a case select the latter alternative provided this can be done without unreasonable expense or inconvenience.

Where radioactive radiation sources must be used, they shall involve as little risk as is practically achievable.

For non-medical use of radiation, x-ray apparatus shall be used rather than radioactive radiation sources when practically possible

Existing areas of use and methods shall be reconsidered when new information emerges relating to their justification.

Regulatory practice in other countries ?

– We make an ERPAN survey !!

- Background
- Blood irradiators containing radioactive sources are according to the IAEA categorization system considered as category 1 sources. Due to security concerns The Norwegian Radiation Protection Authority (NRPA) plan to evaluate the feasibility to substitute or phase out these type of blood irradiators located in hospital environments with almost risk-free blood irradiators based on X-ray technology.
- Questions
 1. Do you have both types of blood irradiators in use?
 2. Can you indicate the number of X-ray based irradiators compared to gamma based irradiators in your country (any information is welcome)?
 3. What are the experiences with the X-ray technology, pro et contra (reliability, costs, maintenance etc.)?

Answers

The nine countries that answered were Spain, Slovenia, Sweden, France, Czech Republic, Belgium, Switzerland, Germany (by Bavaria) and Luxemburg.

All the responding countries except one had gamma based blood irradiators and three countries had in addition X-ray based irradiators. One country informed that they had started to substitute gamma based irradiators with X-ray a few years ago and that all gamma based irradiators will be replaced.

The total number of blood irradiators in the responding countries/states and is roughly estimated to be at least 104 gamma based and 19 X-ray based.

The impression from the feedback was that X-ray based irradiators is well functioning, but there are some disadvantages. There are more breakdowns when installed in warm areas or rooms because of the temperature, the equipment needs maintenance which is expensive, and the system needs continuous power supply which makes it essential to make sure the power supply and fuses can cope with the fluctuations that occur. It was also mentioned that X-ray based irradiators required longer time for irradiation

The next steps..

- NRPA refused to renew the licence with a radioactive source based blood irradiator – recommended substitution to a x-ray based system.
- The hospital appealed the decision to The Ministry of Health. – mainly with practical arguments.
- The Ministry of Health affirmed the NRPA decision .
- NRPA has informed all involved hospitals that a «phase out» policy will be applied and that new blood irradiators should be based on X-ray technology in the coming years.
- Estimated phase out periode: 10 – 15 years