

Improved security measures for radiation sources in Norway – A case study of irradiation facilities in hospitals

EAN Vienna, 21-23 October 2009

www.nrpa.no



Statens strålevern
Norwegian Radiation Protection Authority

Radioactive sources in Norway

- IAEA category 1-2 sources
 - Irradiators used for calibration, sterilization, research and radiotherapy, 4 units
 - Cs-137 blood irradiators, 13 units
 - Industrial radiography, ca. 200 radiography containers.

- IAEA category 3-4 sources
 - Well logging
 - Radioactive gauges in permanent installations, ca. 2500.

Regulatory framework – new regulation 2004

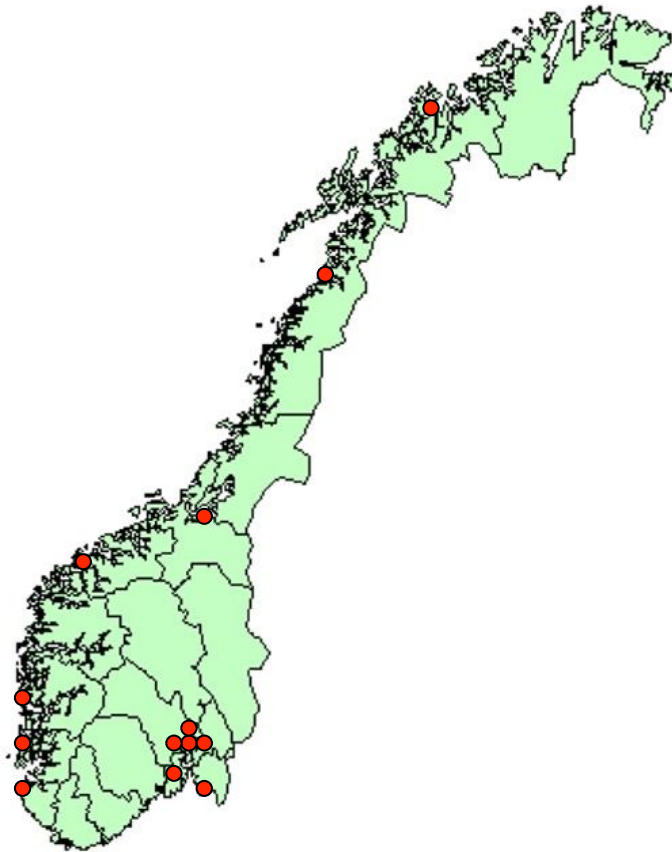
- New regulation with security requirements (in line with international guidelines)



Concerns for the security of blood irradiation facilities

- Radioactive sources with open beam: security measures as a consequence of stringent safety requirements
- Self shielded blood irradiators:
 - No safety issues
 - Low risk for theft and sabotage but serious consequences if so should happen
 - Need for upgraded security measures

Geographical distribution of blood irradiators

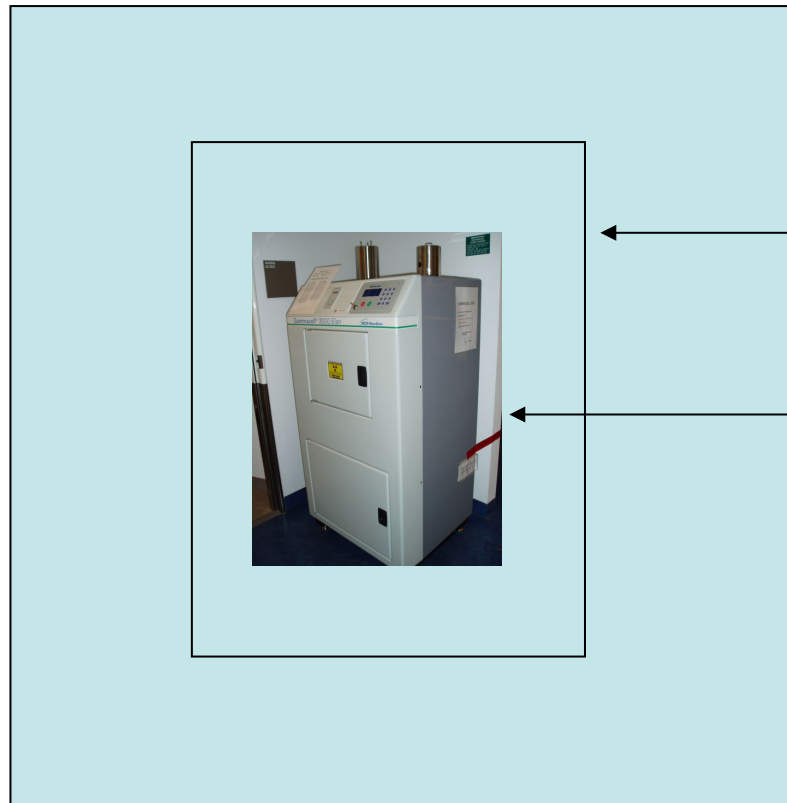


Upgrading security at blood irradiation facilities 2006 - 2007

- Previous requirements
 - Two independent security measures
- Today's requirements
 - Three independent security measures (room with access only for users of the irradiator)
 - Reliability check of users



Barriers



← Department, access restricted

← Separate room - further access restricted

← Irradiator, key or code

X-rays as an alternative

- X-ray blood irradiators are available alternative technology
- Advantages; x-ray devices are less attractive to terrorist.
- Disadvantages; more expensive, more failures



Register for sources in industrial and medical application

- From paper based notification to web based registration tool
- End-user and NRPA have access to the same information
- End-user register and update information about themselves
- Covers radioactive, x-ray, UV- and laser sources.

