

# Quality and Safety

## Initiatives for Radiation Oncology in Europe: different approaches, united view.

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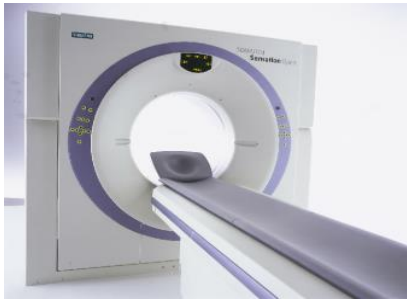
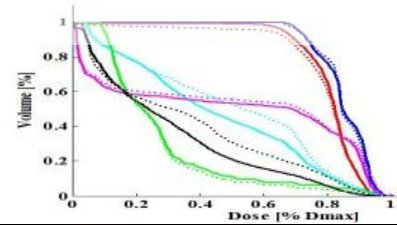
Co-Chair HERO (Health Economics in Radiation Oncology) project

ESTRO president

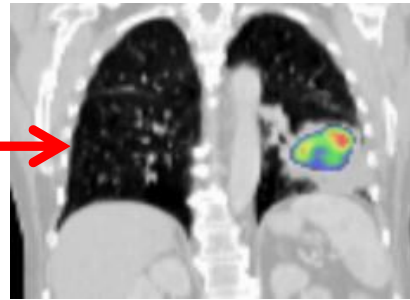


# State-of-the-art Radiation Therapy

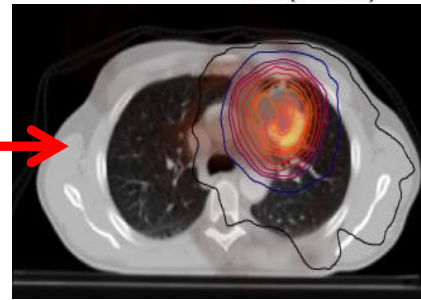
*treatment preparation*



imaging



delineation

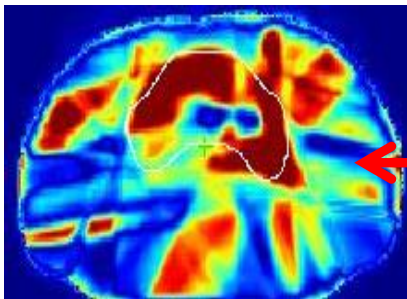


planning



pre-treatment dosimetry

*treatment delivery*



per-treatment dosimetry



treatment

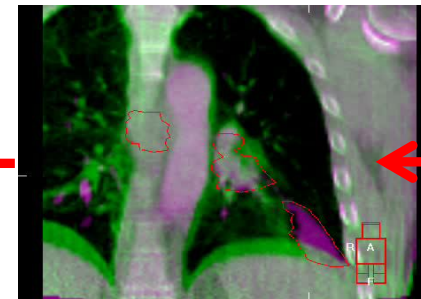


image registration & correction

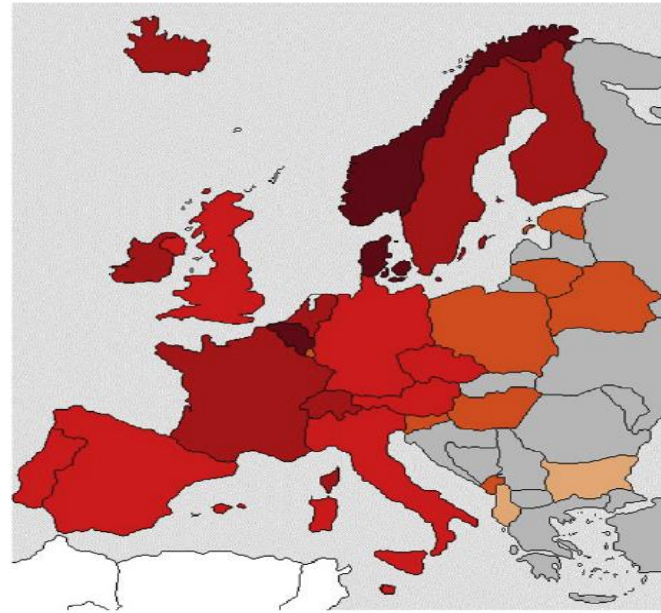


imaging

**daily**

# European map of resource availability

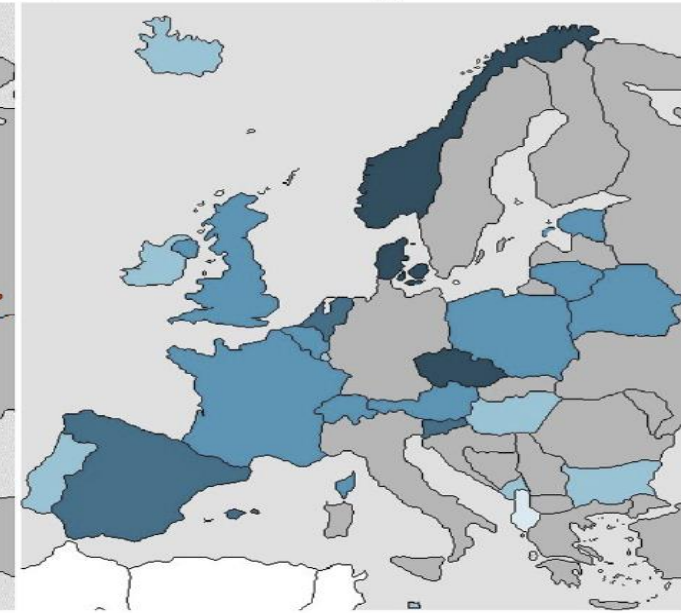
(a) Treatment machines



Mean:5.3 Median:5.3 Min:1.4 Max:9.5

0-2 2-4 4-6 6-8 > 8

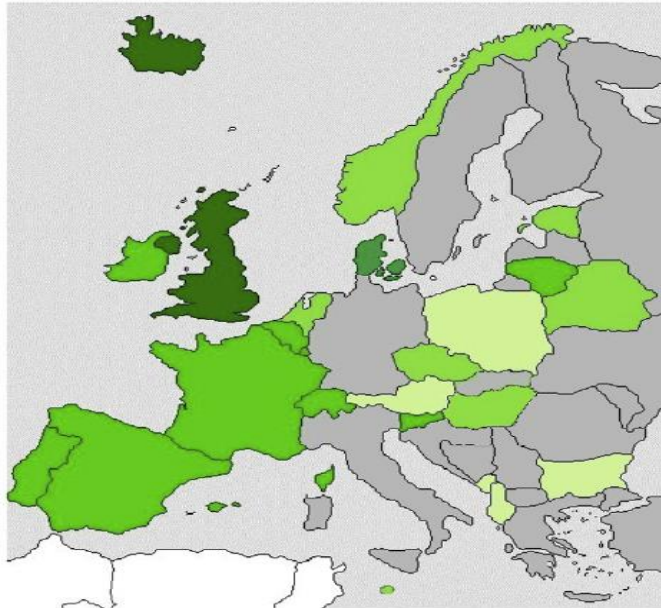
(b) Radiation oncologists



Mean:12.8 Med:11.0 Min:2.5 Max:30.9

0-5 5-10 10-15 15-20 > 20

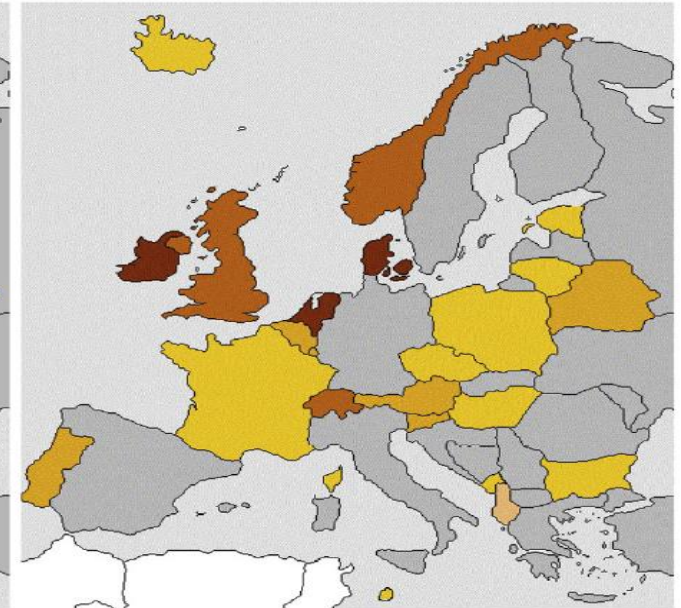
(c) Medical physicists and dosimetrists



Mean: 9.8 Med:9.8 Min:0.0 Max:21.9

0-5 5-10 10-15 15-20 > 20

(d) RTTs and nurses



Mean:36.9 Med:30.9 Min:4.9 Max:78.0

0-15 15-30 30-45 45-60 > 60

# the ESTRO vision

“ Every cancer patient in Europe will have **access** to **state of the art** radiation therapy, as part of a **multi-disciplinary** approach where treatment is **individualised** for the specific patient’s cancer, taking account of the patient’s personal circumstances. “



*Valentini, Bourhis, Hollywood. R&O 2012*

*in a safety aware environment*

are the quality management  
strategies and initiatives  
sufficiently **aligned**  
amongst European countries?

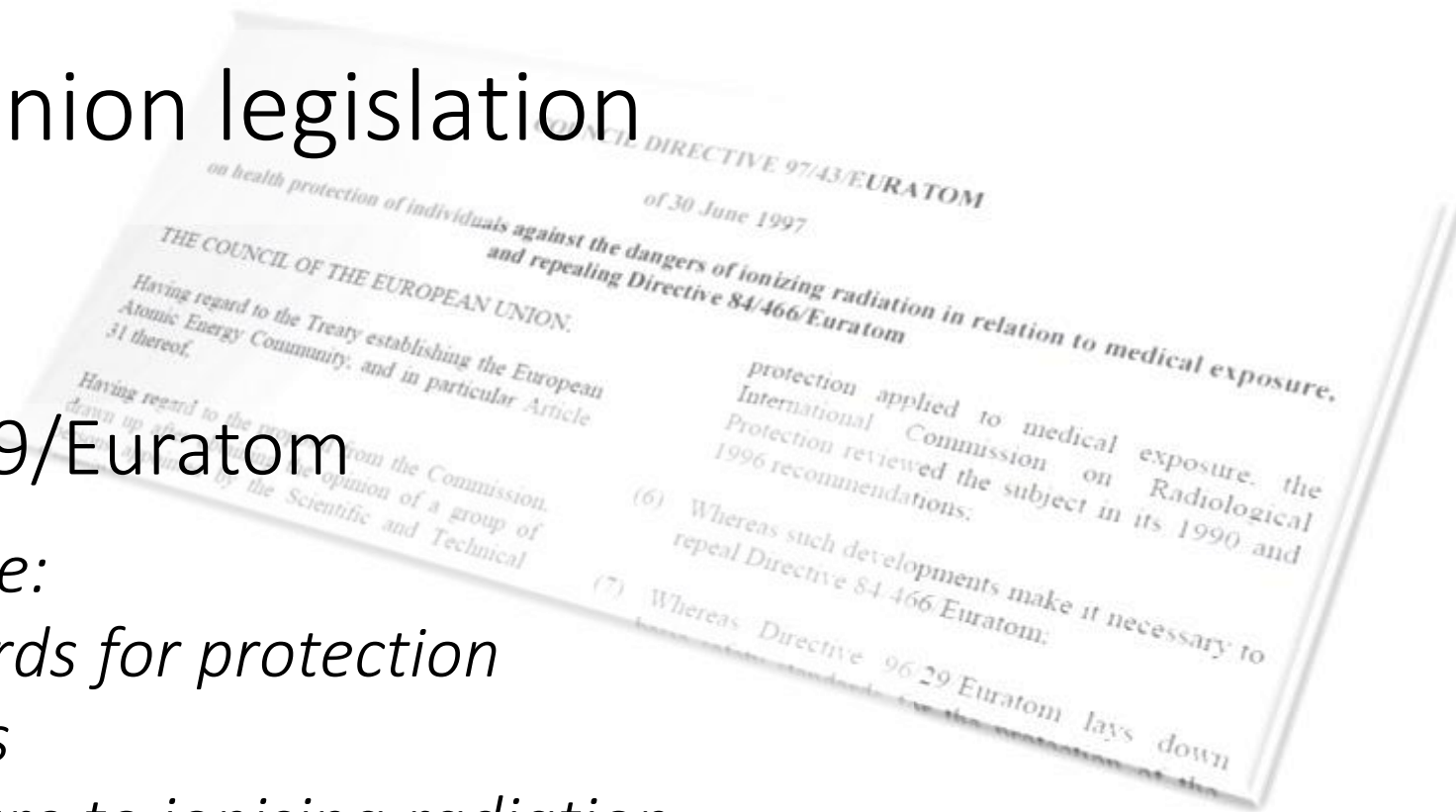
# European Union legislation

## Directive 2013/59/Euratom

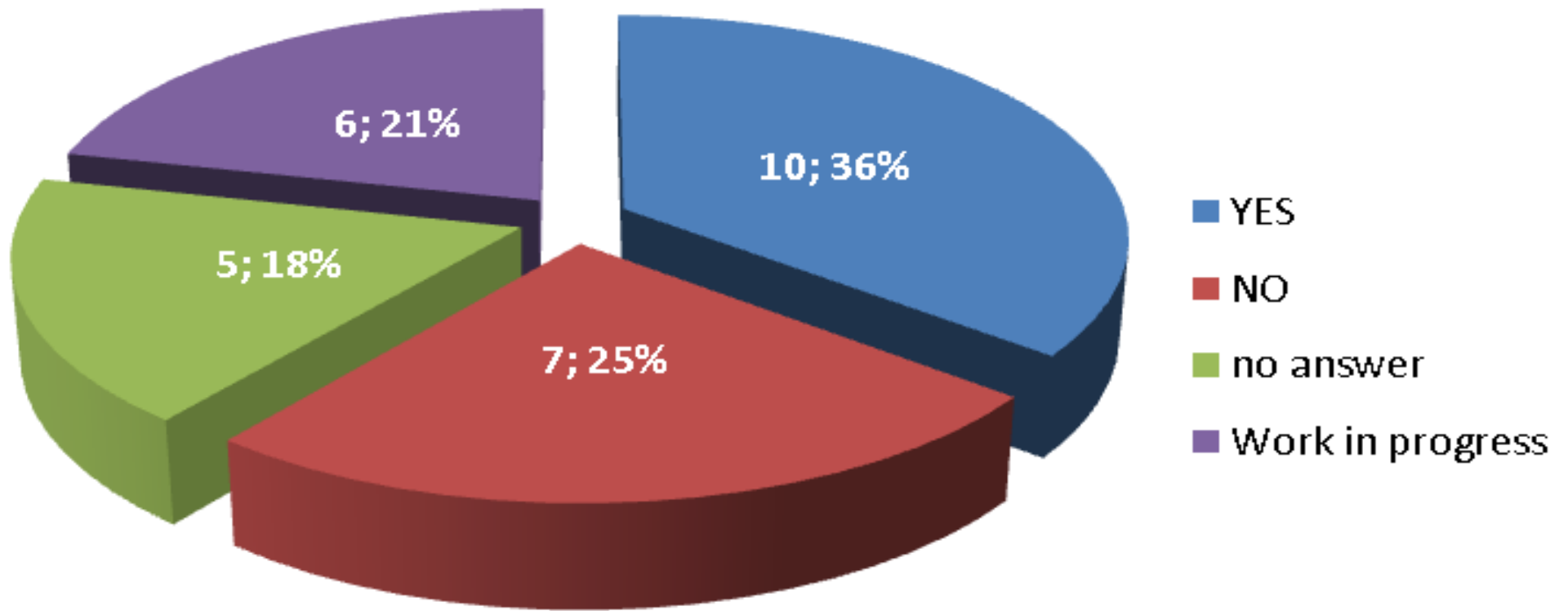
*BSS Council directive:  
basic safety standards for protection  
against the dangers  
arising from exposure to ionising radiation*

The updated Directive broadens the application to the **whole range of radiation sources** and **categories of exposure**: occupational, medical, public and environmental.

It **covers the protection** of: workers , the public and patients, and focuses on **reporting, analysing** and **learning** from near misses, incidents, accidents.



# Radiotherapy Quality Indicators



*who collects them at national level?*

# Clinical Audits in European countries

<i>Country</i>	<i>National Clinical Audit System</i>	<i>Who runs the audits</i>	<i>Mandatory?</i>
<i>Austria</i>	NO		
<i>Belgium</i>	YES (QUATRO), within Belgian Cancer Plan from 2010	The College for Radiotherapy-Oncology	YES
<i>Denmark</i>	YES	By tumour site societies	NO
<i>France</i>	NO		
<i>Germany</i>	YES	National Scientific Oncology Societies	NO (needed to be certified in Oncology)
<i>Italy</i>	NO		
<i>Netherlands</i>	YES	Run by NVRO + compulsory independent accreditation (NIAZ; JCI )	YES – otherwise insurance companies can deny contracting
<i>Spain</i>	NO		
<i>Sweden</i>	NO		
<i>UK</i>	YES	IPEM,NCP, RTTQA Dosimetry audit network	NO

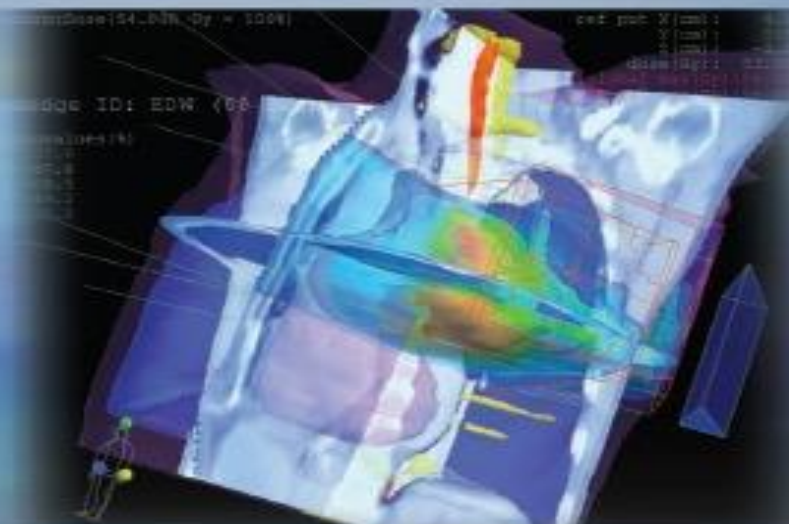


# Comprehensive Audits of Radiotherapy Practices: A Tool for Quality Improvement

Quality Assurance Team for Radiation Oncology (QUATRO)



ESTRO



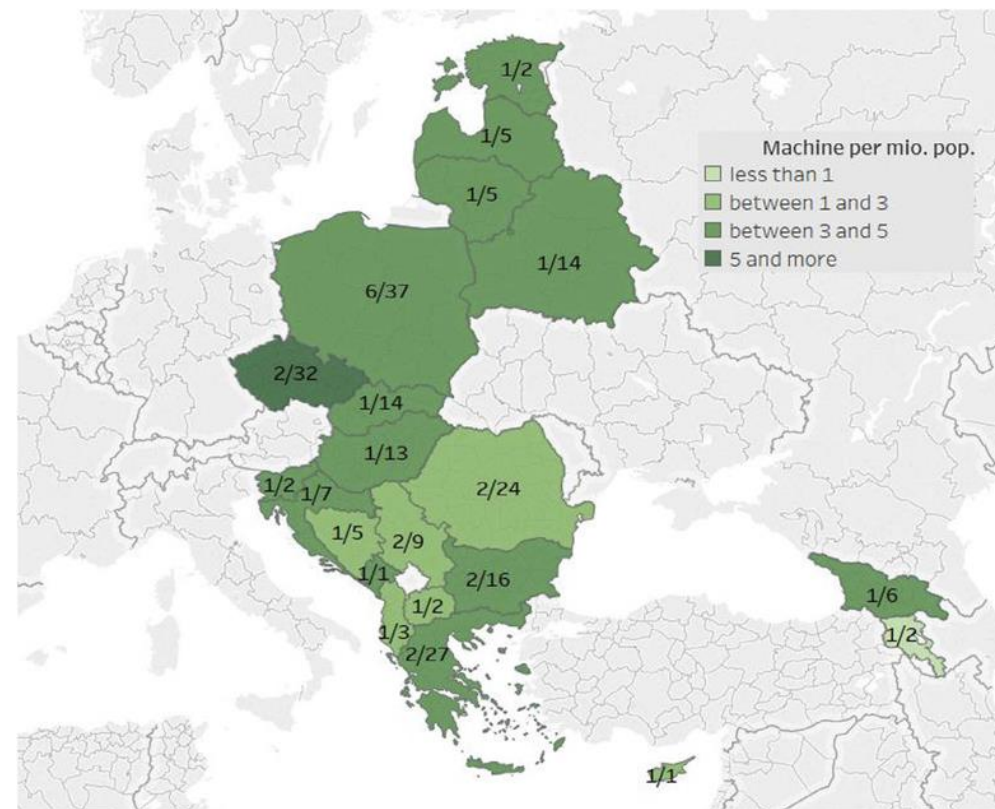
IAEA

International Atomic Energy Agency

Comprehensive  
Multidisciplinary

Peer review

External and independent  
Processes and structure



*J. Izewska et al, R&O 2017*





*ACCidental and unintended exposures  
in RADiotherapy*

European Medical Exposure Directive of 1997  
(Council Directive 97/43/Euratom)

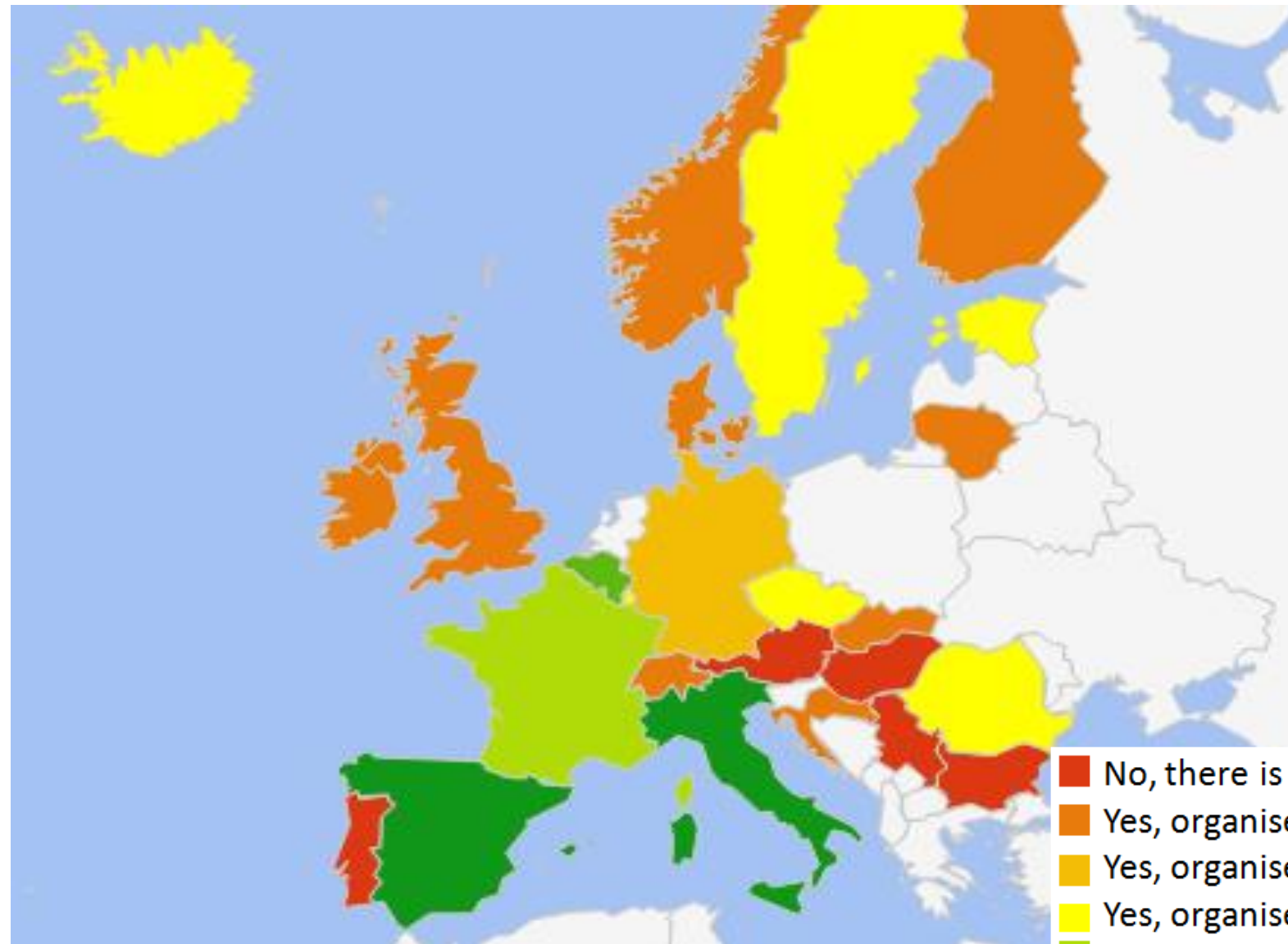
*“Member States shall ensure that all reasonable steps to reduce the probability and the magnitude of **accidental or unintended doses** of patients from radiological practices are taken (...) and stipulates that the main emphasis in accident prevention should be on the equipment and procedures in radiotherapy.”*

**analysis - picture of implementation - recommendations - consensus**

*Report 181 Commission's Radiation Protection series*

<http://www.accirad.eu>

# adverse events reporting



- No, there is no reporting system
- Yes, organised at national level
- Yes, organised at regional level
- Yes, organised at institutional level
- National + Regional
- National + Institutional
- National + Regional + Institutional

Courtesy J. Malicki, Poznan

<http://www.accirad.eu>

# ROSEIS

## *Radiation Oncology Safety Education & Information System*

- within ESTRO: **wider platform** for sharing and exchanging information
- **repository** for anonymous reports of near misses and error events, submitted from existing local or national reporting systems
- identifies **best practices and gaps in development** of reporting, facilitates learning from the experience of others
- provides **educational material**
- supports a **prospective risk analysis** approach

### *Implementation of the EU Directive:*

*supporting, reporting and learning,*

*both integrated in a European and International platform*

# Main recommended components for Quality and Risk Management in Radiotherapy

1. Update national **legislations**
2. Deploy **methodology** for quality and risk management
3. Disseminate **information** on risk management
4. Provide **training** in risk management and safety culture
5. Inform **patients** and the **public** to increase trust in the health care system
6. Stimulate **Clinical Audits**
7. Perform **regulatory inspections** by national authorities

# ESTRO as a facilitator for the harmonisation of RT quality and safety standards

- **Evidence** and **tools** to support resources and measure quality
- **Guidelines** for evidence-based radiotherapy in oncology
- **Training** to harmonise radiotherapy practice and to enhance  
Quality Management and Risk Management
- **Information** on quality and safety of radiotherapy
- **Proactive action**
  - Collaborate in **safety reporting** and implement **risk learning systems**, contribute to its development and dissemination
  - Participate to **Quality Audits** and promote **Quality Indicators**
- **Collaboration** with international organisations and institutions  
(HERCA, COCIR, IAEA)

**ESTRO**, an overarching organization,  
aims to align – **by guiding and supporting** –  
without overruling.

**ESTRO** is dedicated to take up its role  
in **facilitating European harmonization**,  
within a framework of **international collaboration**.



# Thanks to

Nuria Jornet, Philippe Maingon, Nicolas Pourel, Julian Malicki, Mary Coffey, Aude Vaandering, Pierre Scalliet

the ESTRO



the Belgian College for Physicians in Radiotherapy-Oncology



The IAEA



# Thank you for your attention!