Improving the Radiation Protection Safety Culture in the UK

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Introduction

- The most effective way to improve safety in an organisation is to embed safety into its culture
- Everything else is treating the symptoms

What is RP Safety Culture?

- Our focus is RP Safety Culture, but this is part of the wider whole
- Fundamentally, it is the values and behaviours in an organisation and its members that make safety the overriding priority - “The way we do things around here”

- Many organisations have done tremendous work in this area (INPO, IAEA, NRC) - we are not starting from a blank sheet of paper

Examples of a Strong Safety Culture

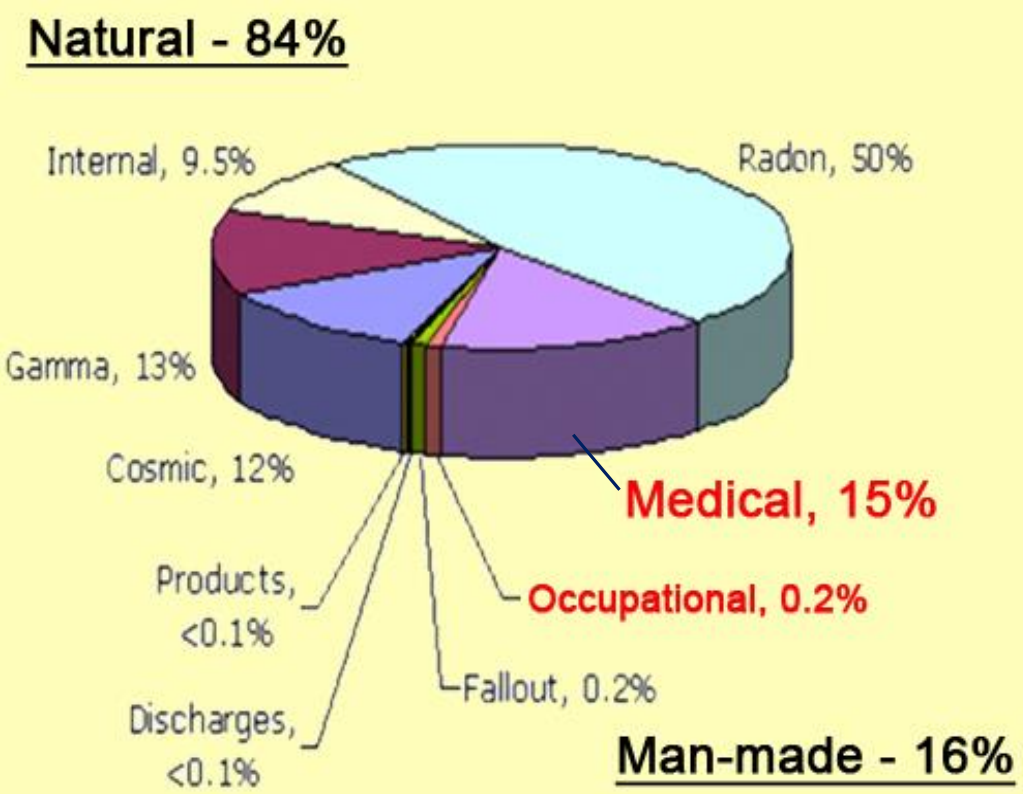
There are a number of behaviours which are typical of a strong Safety Culture – the following are examples;

- Everyone feel **personally** responsible for safety
- Leaders **demonstrate** their commitment to safety
- **Trust** permeates the organization
- A **Questioning attitude** is cultivated
- **Open reporting** of problems and errors **without blame**

And, crucially, **good operating performance**

Key Areas of Interest

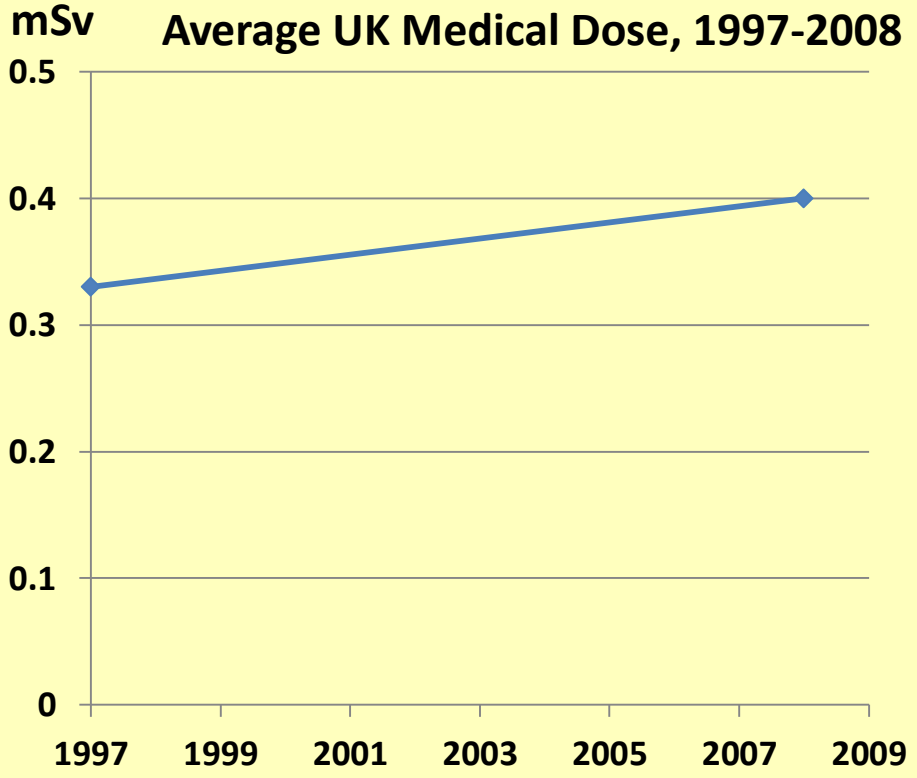
- SRP set up a Working Group which has focussed on two main sectors
- The Medical sector dominates man-made dos to the Public
- The Nuclear sector dominates man-made dose to Employees



UK Health Protection Agency, HPA-RPD-001, Ionising Radiation Exposure of the UK Population, 2005 Review

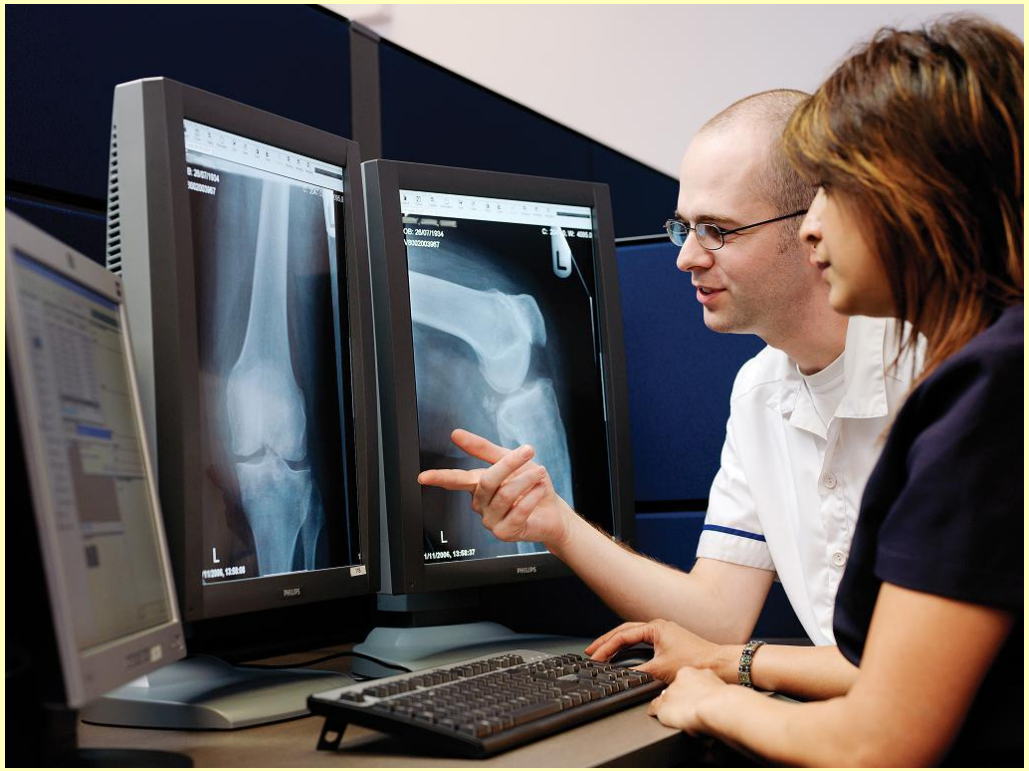
Overview of Medical Issues

- UK Health Protection Agency has estimated that average radiation dose to the UK public from all diagnostic X-rays has increased by about 20% over the last 10 years to 0.4 mSv - equivalent to about 24,000 person Sv.
- While the risk to an individual is tiny, the collective risk is significant
- Any reduction in unnecessary dose could therefore give significant benefits



Medical Issues

- Medical Safety Culture is complex – the whole purpose is to make the patient's life better
- Diagnostic imaging is a critical tool for this
- The focus must therefore be to help the decision makers to
  - reduce unnecessary dose
  - optimise the necessary dose



- Audits show there is still significant scope for reductions in unnecessary x-ray referrals

Computed Tomography Scanning

- CT scanning now accounts for ~70% of the dose from all X-ray procedures
- ~3.4 million CT scans in 2008 - a rise of 140% in 10 years.
- Clinical benefits from CT scanning are huge, but optimisation is essential
- Interestingly, ~20,000 (0.6%) of CT scans were self-initiated by individuals who did not show any symptoms

- The UK Committee on Medical Aspects of Radiation in the Environment (COMARE) have strongly recommended that whole body CT scanning of asymptomatic individuals should cease

Overview of Industrial issues

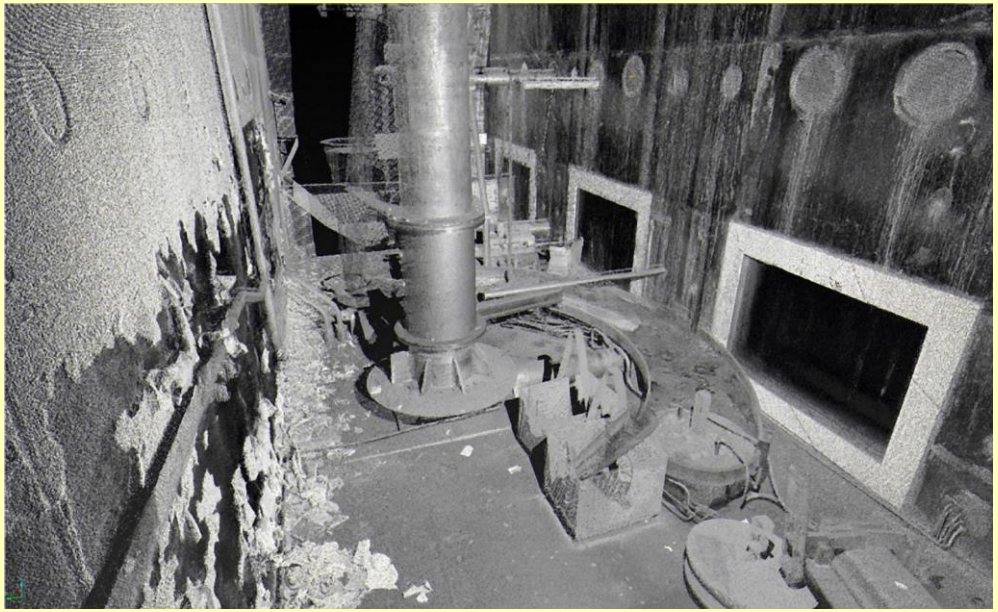
- Nuclear industry also faces major challenges, as work moves from operations to decommissioning

Overview of Industrial issues

- A great deal of work has been done in the past decades to reduce radiation dose to workers
- One of the main contributions is the replacement of old facilities with new
- Minimising radiation dose was one of the highest priorities

Decommissioning Issues

- Decommissioning involves resuming work in the same facilities responsible for the high radiation doses of the past
- The work can also be more challenging than the past
  - Decommissioning of Reactors, caves, fuel ponds etc.



Where do we go from here?

- The Working group has produced a **draft action plan**
- The plan contains **proposed actions** which we believe will help improve the RP Safety Culture in different organisations
- This is reliant on the **key RP Professionals on the ground (ourselves**) to adapt it to our needs, to implement the relevant elements in our work
- There are a number of important issues

Knowledge of Radiation Risks

- Improvement in awareness and technical knowledge greatly assists a strong safety culture
- Particularly understanding of radiation risks for the benefits are critical
- Need to match to the needs of the profession and the individual
  - A Board member needs different knowledge to a Nurse, Front line worker or Technician
  - The knowledge required by different roles need to be identified in training programmes

Role of the Radiation Protection Advisor & Medical Physics Expert

- The RPA and MPE (the 'Qualified Expert') are key roles, but can be misunderstood
- The role is to assist the employer to optimise dose and to maintain legal compliance
- To an employer, it can appear that the role is about creating hurdles to getting the job done simply and effectively
- The RPA/MPE needs to be a change agent, influencing all levels from senior management to the shop floor
- This demands good 'soft skills' of communication and persuasion
- SRP and Partner Societies need to be able offer help where needed

Radiation Protection Supervisors (RPS)

- The RPS is usually a front line Supervisor
- Responsible for both management and radiological safety
  - crucial role in developing and maintaining a strong Safety Culture
- Workload is often high with competing pressures.
- Can result in operational priorities taking precedence over control and optimisation of dose.

Regulators

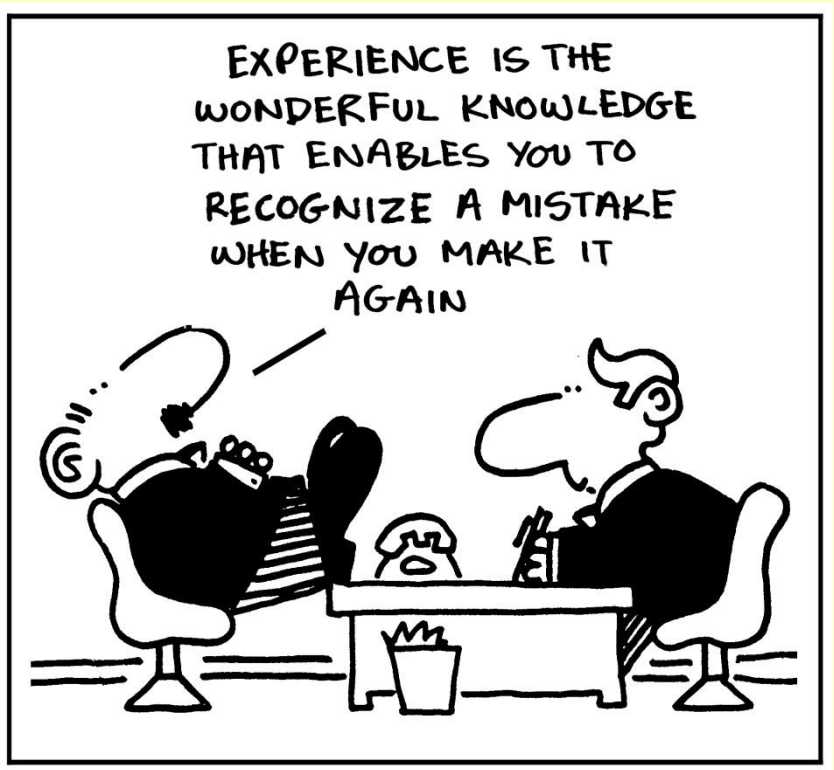
- Regulators are a critical stakeholder group
- Inspectors have a powerful opportunity to offer support and encouragement for developing an effective RP culture.

The Professional Bodies

- The professional bodies (SRP and the Partner Societies) can help promote the development of a strong RP culture.
- Interact with key stakeholders to help improve understanding and support
  - Regulators
  - Employer Organisations
- Need to offer support and help to Members to acquire the skills needed.

Learning from experience

- A true learning organisation is a major attribute of a good culture.
- Without it we are destined to repeat the mistakes and ignore the successes of the past
- Effective Operational Experience Feedback (OEF) is therefore critical
- This can be challenging, particularly if there are local sensitivities over releasing information or a perceived risk of litigation



RP Safety Culture Action Plan

- The Draft Improvement Plan is in the paper to assist
  - **Medical Professionals**
  - **Nuclear Industry Professionals**
  - **Professional Societies**
- Focus is on teamwork and communication between RP professionals, senior managers and front line colleagues to encourage
  - Senior managers to adopt improvement in Safety Culture as policy
  - Colleagues to adopt as working principles
- It also suggests how RP Societies can work with decision makers to assist safety culture improvement

How to succeed

- The future is in our own hands
- In the words of Theodore Roosevelt
  - “The best thing you can do is the right thing; the next best thing you can do is the wrong thing; the worst thing you can do is nothing.”
- Thank you for your attention

Further reading

- Institute of Nuclear Power Operations (INPO) - Principles For Strong Nuclear Safety Culture (Nov 2004)
- IAEA International Nuclear Safety Advisory Group (INSAG) number 15, Key Practical Issues in Strengthening Safety Culture, (September 2002)
- U.S. Nuclear Regulatory Commission (NRC) Development of a Nuclear Safety Culture - Final Safety Culture Policy Statement (*NRC-2010-0282*).
- Health Protection Agency (HPA-CRCE-012) - Frequency and collective dose for medical and dental X-ray examinations in the UK, 2008, D Hart, B F Wall, M C Hillier and P C Shrimpton, (December 2010, ISBN: 978-0-85951-684-6)
- Health Protection Agency (HPA-RPD-001) Ionising Radiation Exposure to the UK Population, 2005 Review -, S J Watson, A L Jones, W B Oatway and J S Hughes, (May 2005, ISBN: 0-85951-558-3)
- The Royal College of Nursing in conjunction with SCoR, GCC, CSP, NHS Alliance, RCR, GOC, HPA - Clinical Imaging Requests from Non-Medically Qualified Professionals, (2008) (www.sor.org/auth/forms/login.php?r=documentlibrary/sor_clinical_imaging_requests_non_medically.pdf for members of SoR).