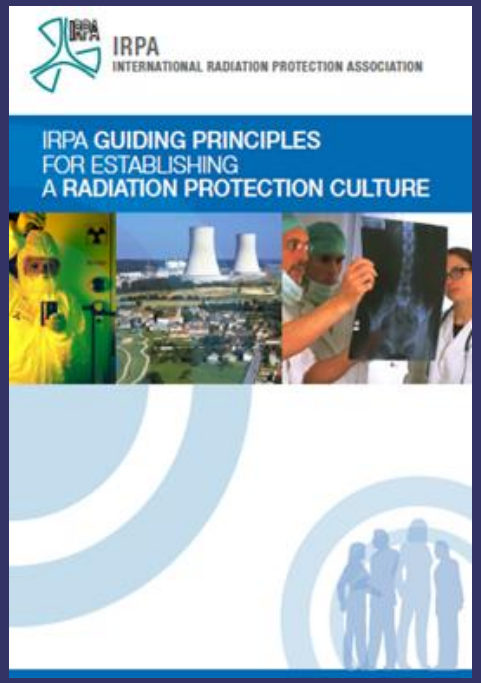
# IRPA guiding principles on Radiation Protection Culture drawn up by RP professionals for the benefit of RP professionals




**Dr B Le Guen**
IRPA Executive Officer

***IRPA regional congress***
***Geneva, Switzerland, 30th 2nd November 2015***

# IRPA's programme

**Principal Programme Themes**

**A** *To provide feedback on the system of protection between the practitioners and the international organisations*

**B** *To embed the sharing of good practice and professionalism in Associate Societies and individual members, and to support the establishment and development of effective Associate Societies*

# Goal of activities

**One way of preventing the risk is to root radiation protection in the general culture and so to develop a common RP culture.**

# Sharing of good practice and professionalism through IRPA

## Which roles, IRPA could play to enhance RP culture ?

- Encouraging and supporting new societies
- Education and Training
- Certification of RP Experts
- Encouraging Young Scientists and Professionals
- Sharing good ideas across our societies
- International and Regional Congresses with satellite meetings on this topic
- Publishing guiding principles

# IRPA initiative on Public/Patient Understanding of Radiation Risk

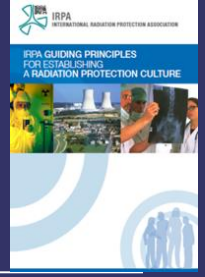
IRPA and its Associate Societies are independent - *of governments, industries, regulators* - and have a high potential to be trusted as a source of information.

Helping members of the public / patient understand radiation and risk is becoming central to our activities as RP professionals

IRPA TG on Public Understanding of Radiation Risk

*- to encourage and support Associate Societies in the development of effective means of enhancing public understanding of radiation risk through the sharing of good practice, ideas and resource material*

# The IRPA Guiding principles on RPC




## Objectives

- to foster a belief in the success of cultural approaches,
- and to provide guidance to help equip radiation protection professionals to promote a successful RP culture in their organisation and workplace.
- From nuclear industry to the medical sector, this first IRPA Guiding Principle on RP Culture is a common document about culture from the perspective of professionals, geared towards professionals

**Embedding RP at a cultural level within an organization is by far the most effective way of delivering the performance to which we all aspire.**

This guidance has been developed in an inclusive and consultative approach

## Content

1. Purpose and scope
2. Introduction
3. Elements and Traits of an RP Culture
4. Developing an RP Culture, and Criteria of Success
5. Assessment of RP Culture
6. The Role of RP Professionals
7. Involvement with Other Stakeholders
8. The Role of Associate Societies
9. Conclusion

# Why are we interested in a specific Radiation Protection Culture?

- To give visibility to the fundamentals of RP
- To promote radiation risk awareness (conscience)
- To promote shared responsibility among practitioners, operators, manufacturers, management and regulators
- To maintain the RP heritage
- To facilitate its transmission
- To improve continuously the quality and effectiveness of RP
- To contribute to the general safety

# Common Basis

There are no differences between sectors (medical, research, nuclear industry) whereby RP Culture can be understood as **a combination of habits and knowledge of RP:**

1. in all its aspects for patients, workers, population and environment,
2. and in all exposure situations,
3. combining scientific and social dimensions.

# What is meant by Culture?

- The ideas, beliefs and customs that are shared and accepted by people in a society.

- That complex whole, which includes knowledge, belief, art, morals, law, customs, values, symbols, rituals and any other capabilities and habits, acquired by people as members of society that determine appropriate attitudes and behavior

# Culture comes from three sources

(1) **Beliefs, values, and assumptions** of the founders of an organization,

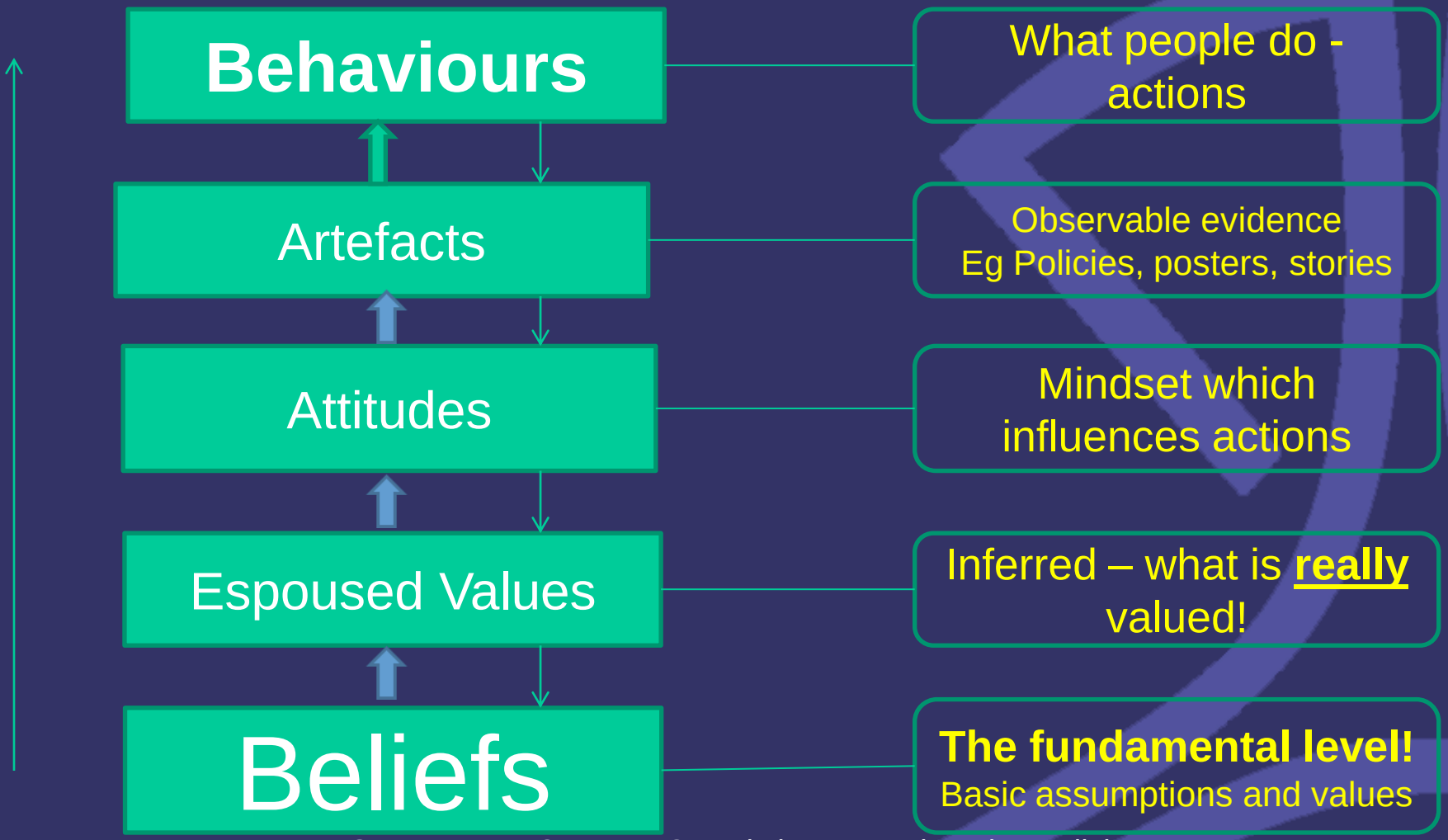
(2) **Learning experiences of group members** as the organization evolves (Groups of people who have shared significant problems, solved them, observed the effects of their solutions, and who have taken in new members)

(3) Beliefs, values, and assumptions **brought in by new members and leaders.**

# Features of a Culture

- Central value
- Typical and specific structure
- Strong ethos kept in leaders
  - (ethos: *the fundamental and distinctive character of a group, social context, or period of time, typically expressed in attitudes, habits, and beliefs*)
- System of continuation (education) – transfer of knowledge and expertise
- Endurance
- Combination of innovation and conservation
- Social acceptance

# Safety Culture
## (according to Schein)



# Questions during the IRPA meetings

- What are the elements of the culture and how could we define it?
- Is it possible to assess the RP culture and what could be the criteria?
- How to engage the stakeholders (regulators, professionals professional organizations…) in the process of developing RP culture.
- What is the role of RP professionals and IRPA AS with regard to RP culture?
- How is regional culture included?
- What are the criteria for success?

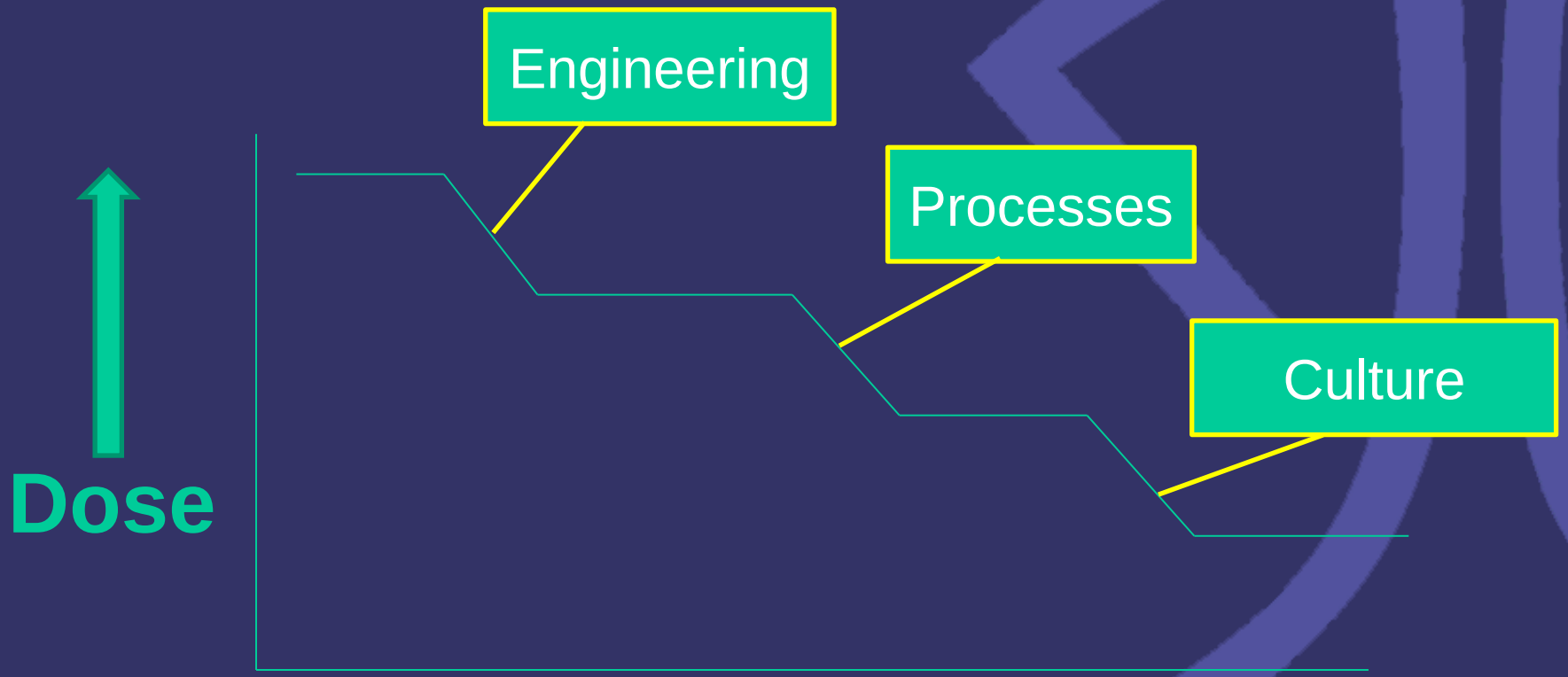
# Safety Culture vs RP Culture

**RPC is part of RSC (radiation safety culture) and**
Protection culture needs necessary to implement safety.

**Safety culture** is a concept that has been defined by different institutions, organizations, and there is a common understanding of its meaning

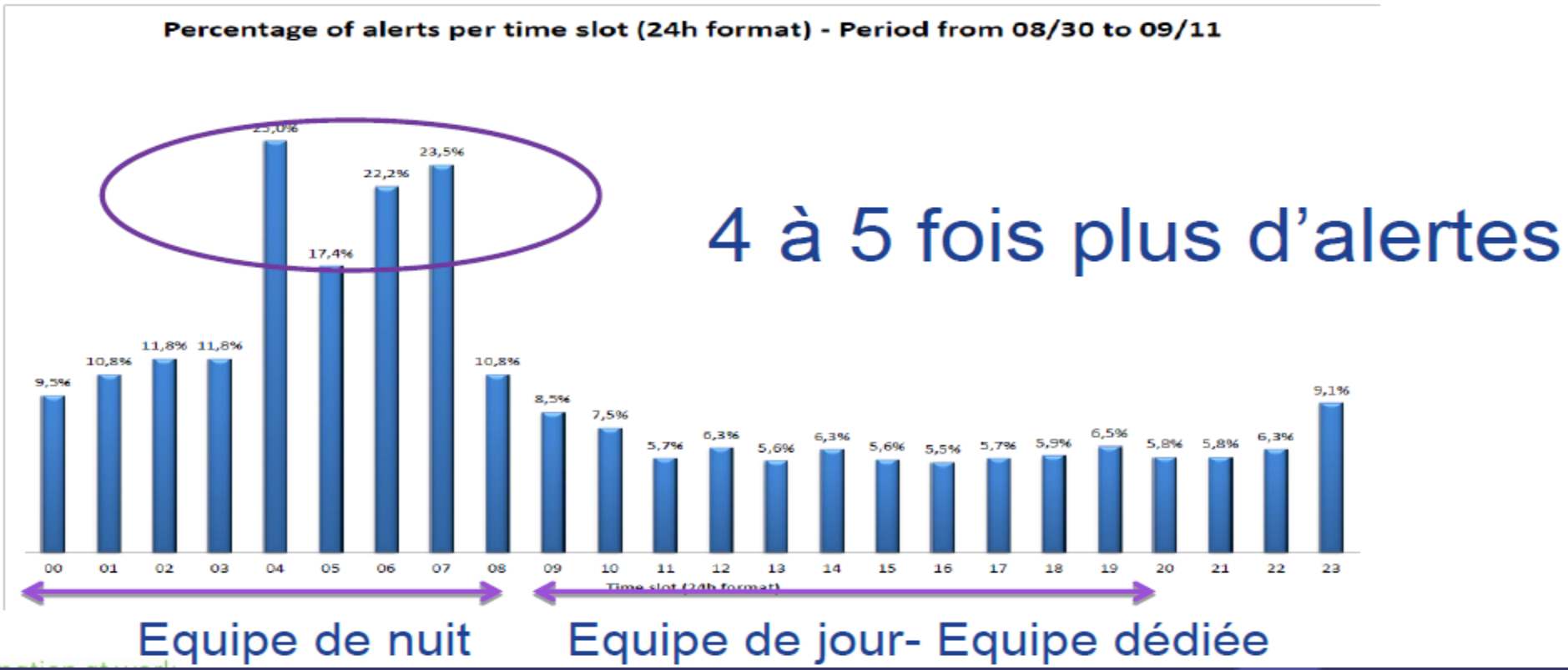
- Safety culture includes nuclear safety, RP, occupational safety, security, health, environmental safety, patient safety …
- Hence, RP culture in our organizations should be seen as the implementation of RP principles inside the framework of safety culture
- RPC is part of SC, with peculiarities: both are looking at human errors and the human side of safety.

# "Devices, Processes and **People**" equals ALARA



**In medicine technique is not enough;**
**let's start by challenging our own practices…**
**Dose reduction is desirable in daily practice and requires the establishment of reference levels**
**The establishment of "good practices" requires a minimum level of standardisation**

# Analysing one's own practices: same hospital, same equipment. Night shift VS day shift



# RP culture development and improvement

**What are the ways to impact radiation protection culture?**

- **Strong leadership,**
- **Education and training,**
- **Establishment of a positive behavior at the working place ( Individual and collective behavior)**
- **A proper communication among all practitioners.**
- **Similarly, learning from events, incidents and near misses is an important part of culture development.**


# The zero risk doesn't exist , Process must be fault tolerant that's why …

- Responsibilities must be Understood
- Responsibilities must be Manageable
- Early Warnings must be Available
- Must Learn from others Mistakes
- Corrective Actions must Occur
- Audits must be Conducted
- Peer Review must Happen
- Process should be Accredited

In a total safety culture, employees not only feel responsible for their own safety, they feel responsible for their peers' safety, and the organizational culture supports them acting on that responsibility.

# Additional factors within the medical field

- using alternative non-ionizing radiation imaging where practical, especially for children;
- accreditation of all medical equipment – emphasizing to patients that their doses are as low as reasonably or practically achievable;
- reducing radiation exposure for follow-up exams, especially CT;
- participating in national or international dose registries;
- medical radiation dose or equipment error reporting to national or international incident databases;
- requiring clinical audits from internal and external sources;
  - making the most of medical inspections to evaluate the status of radiation protection culture in a given facility (radiotherapy, nuclear medicine, diagnostic x-rays, for instance).

# Example: 9 behavioral elements of general safety culture from U.S.NRC

| **Leadership Safety -Values and Actions** | **Problem Identification and Resolution** | **Personal Accountability** |
|---|---|---|
| Leaders demonstrate commitment to safety in their decisions and behaviors | Potential impacts on safety - promptly identified, evaluated, prioritized, addressed and corrected | All individuals take personal responsibility for safety |
| **Work Processes** | **Continuous Learning** | **Environment for Raising Concerns** |
| Maintain & enhance safety when planning and controlling work activities | Seek opportunities to learn & Implement safety methodologies | Personnel feel free to raise safety concerns without fear |
| **Effective Safety** | **Communication** | **Respectful Work Environment , Questioning Attitude** |
| Communications focus on safety | Trust and respect permeate the organization | Individuals identify discrepancies in existing conditions & inappropriate actions |

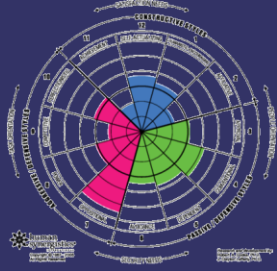
# several possible development stages of radiation protection culture

- **Basic compliance system to Behavioral safety system**

| Culture Status | | | | |
|---|---|---|---|---|
| **Pathological** | **Reactive** | **Calculative** | **Proactive** | **Generative** |
| Compliance, but little else | Worry about costs | Focus on current problems | Benchmark and adapt | Benchmark and involve all organizational levels |
| Audit after accidents | Worry about costs | Regular audits of know hazard areas | Audits are positive & provide help | Continuous informal search for non-obvious issues |
| No safety planning | Safety planning based on past issues | Emphasis on hazard analysis | Planning is standard practice | Planning based on anticipation of problems and review of process |
| Training is necessary evil | Training as consequence of accident | Testing of knowledge | Ongoing on-the-job training assessments | Development is a process not an event |
| Punishment for failure | Disincentives for poor performance | Lip service for positive safety performance | Some rewards for safe behavior | Strong safety performance is in itself rewarding |
| Employee fired after accident | Accident reports not forwarded | Management goes ballistic when hear of accident | Management disappointed in accident | Top mgmt seen on the floor after an accident to make sure workers okay |
| Safety costs money | Can afford preventive maintenance | Safety and profitability juggled not balanced | Money counts but safety is right up there | A safe environment makes money |

Source : Excerpt from 'Safety and radiation protection culture' - K. Classic, B. Le Guen, K. Kase, R. Vetter, Mayo Clinic, EDF France, International Radiation Protection Association. Adapted from Parker 2006.

# Assessment of RP culture - 1



- The assessment tools of radiation protection culture can be done in several ways,
- using a combination of quantitative and qualitative tools required to assess the level and quality of radiation protection culture,
  - not only to measure the identified criteria of success (observations about positive or negative trends),
  - but also to stimulate judgments and observations about positive or negative trends for such a given criteria

# Assessment of RP culture – 2

**At the local level, a RP application could provide for example**

- A **formalized procedure** to assure that the practitioner knows the principles of RP
- Program established to encourage professionals to "Peer Coach" each other (effective tool to change behavior , encourages teamwork and is a sense of "looking out for each other" )
- an established **internal procedure for refreshing and for updating courses and training** provided to professionals.
- Formally **entrust the position of the RP expert**
- Formalized **self-assessments to evaluate the professionals' radiation protection culture:** random checks via **questionnaires filled in by the patients about radiation protection culture**;
- Check first the existence of **a 'blame-free' policy to report and track errors and near misses in an open and constructive way.**
- Regular Monitoring of the system of dose and quality management

# Assessment of RP culture - 3

- **At the level of third parties involved in the supply of RP equipment, the following tools can be applied:**
  - **Manufacturers of ionizing radiation facilities (including nuclear medicine, radiotherapy, diagnostic imaging or industrial applications) or service providers in this area (maintenance, transportation of sources and other third-party services) should undergo an external independent audit to establish the existence of an appropriate level of radiation protection culture among the staff directly involved;**
    - ➢ This point may imply the involvement of a regulatory body.

**The RP practitioners must be aware that interaction with wider stakeholders is essential for the development and application of workplace culture**

# Role of RP professionals

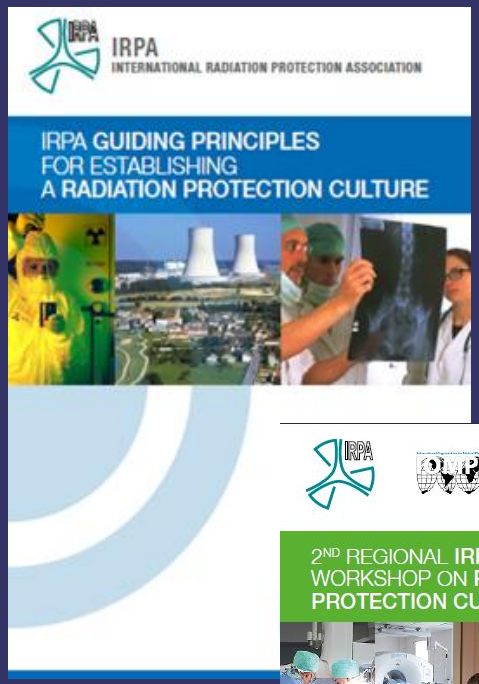
**RP professionals need to:**

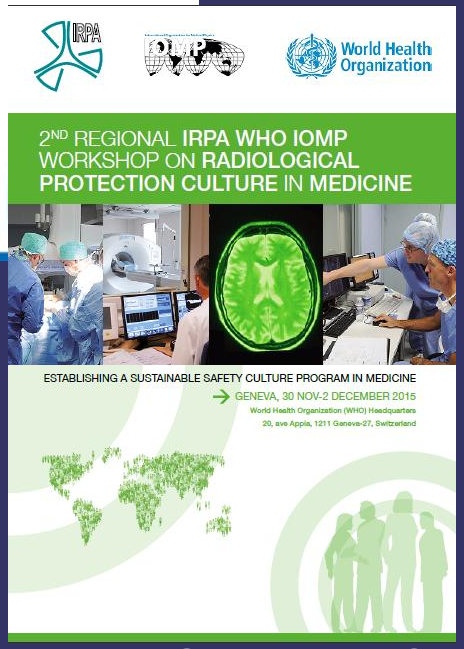
- Display **strong personal leadership and motivation**
- Develop **a narrative on radiation protection in all exposure situations**
- Develop **relationships with the regulators, management, and patients**
- Consider following the NRC-style approach **to develop a policy statement on radiation protection culture**

# Conclusion

- **Developing a "field culture" in addition to the "science, engineering or medical culture" is a way to anticipate problems and to obtain the commitment of all employees.**
- **Radiation protection culture is a learned way of life. It must be an ongoing dialogue**
  - **Among safety professionals,, organizational management and patients**
  - **Between organizations and relevant stakeholders (manufactorers)**


# Conclusion




**These first guiding principles on RPC**

**Was released in 2014**

**And provides also an opportunity for opening a new collection of guiding principles**

**now in collaboration with IOMP and WHO**

IRPA International Organization for Medical Physics IOMP World Health Organization