

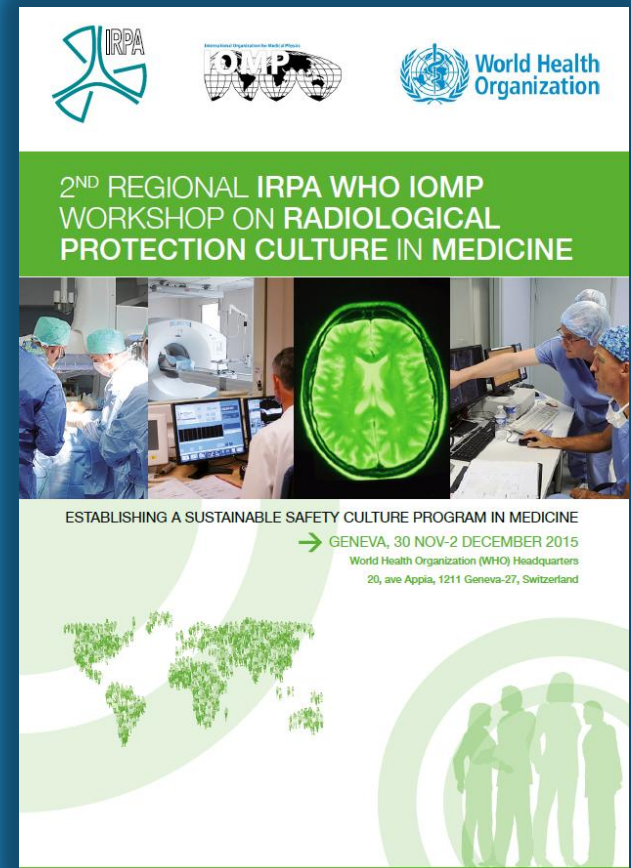


World Health
Organization

Radiological Protection Culture in Medicine

Maria del Rosario Perez

*Department of Public Health, Environmental and
Social Determinants of Health*



WS RPCM, 30 November - 2 December 2015 WHO HQ, Geneva, Switzerland

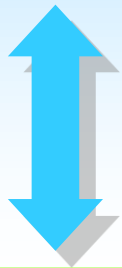
The World Health Organization

- **Objective:** attainment by all peoples of the *highest possible level of health*
- **Function:** act as the UN directing and coordinating authority on *international health work*



The WHO 3-level structure

194 Member States
Ministries of Health



Headquarters
Geneva

6 Regional Offices

150 Country Offices

IARC, Lyon

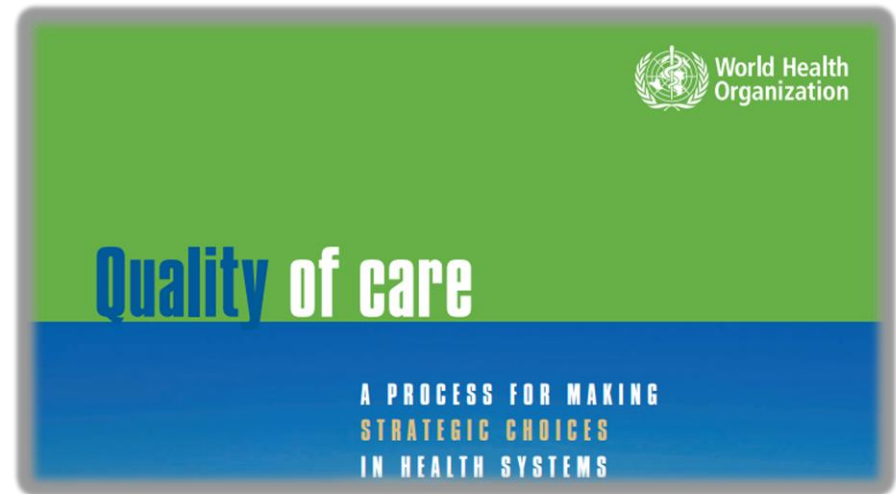
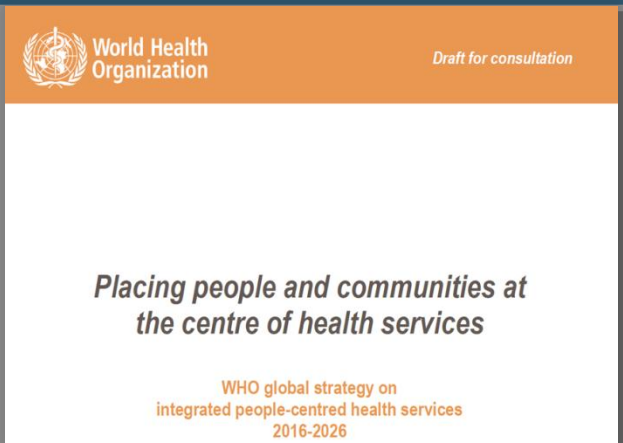


Health Care Quality Dimensions



- Safety

- Effectiveness
- Patient-centeredness
- Timeliness
- Efficiency
- Equality



The WHO leadership priorities

- WHO General Programme of Work for 2014–2019 identifies 6 leadership priorities:
 - Advancing universal health coverage (UHC)
 - Health-related Millennium Development Goals
 - Addressing the challenge of noncommunicable diseases
 - Implementing the provisions of the International Health Regulations
 - Increasing access to essential, high-quality, safe, effective and affordable medical products
 - Addressing the social, economic and environmental determinants of health.



Universal Health Coverage includes access to medical uses of radiation

Annually worldwide

*3,600 million X-ray exams
(> 300 million in children)*



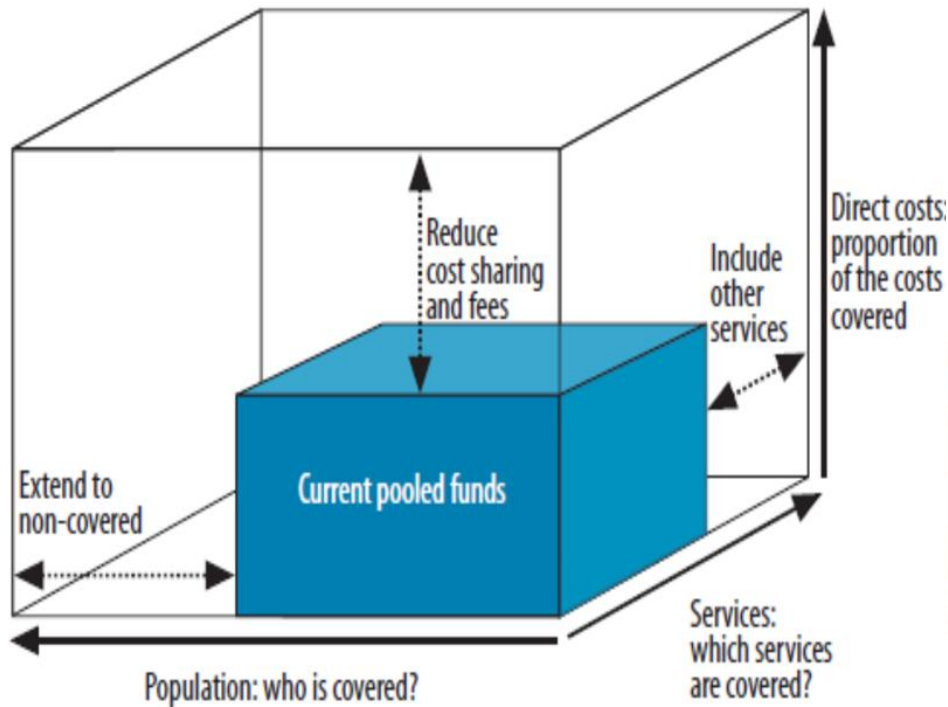
*37 million nuclear
medicine procedures*



*7.5 million radiation
oncology treatments*



Universal Health Coverage encompasses SAFETY and QUALITY in health care



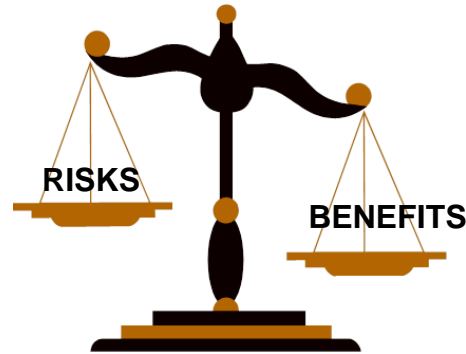
RP culture and good medical practice

- **Radiological protection (RP) culture** in health care is embedded in the broader concept of **patient safety** and included in the notion of **good medical practice**.
- It is the product of individual and group values, attitudes, perceptions, goals, patterns of behaviour and practices that determine the **commitment and proficiency** of a healthcare institution on radiation safety management.
- The ultimate goal of is to **control radiation risks** while **maximizing the benefits** for patients' care.



Radiation Protection in health care

- To control and minimize health **risks**, while maximizing the **benefits**.
- Achieving this balance is particularly challenging in medicine.

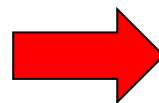


Need to reduce unnecessary radiation exposures and associated risks

- The benefits outweighs the risks when the procedure is:
 - appropriately prescribed
 - properly performed.
- This is not the case if there is no clinical indication or if the radiation dose is higher than necessary for the clinical purpose (e.g. adult protocols used for imaging children)



- ***Do the right procedure !***
- ***Do the procedure right !***



**JUSTIFICATION
OPTIMIZATION**

A culture of patient safety longtime ago...

"Primum non nocere"

"First do no harm"

- The two principles of radiological protection in medical exposures (**justification** and **optimization**) are consistent with this concept.
- However, in general, health professionals are not familiar with these principles and have a low awareness of radiation doses and risks



Hippocrates (460
BC-377 C)

“First do not harm” ???...

D.K. Sokol “First do no harm” revisited BMJ 2013;347:f6426

- It was suggested that a more accurate formulation would be

“ First do not **net** harm”

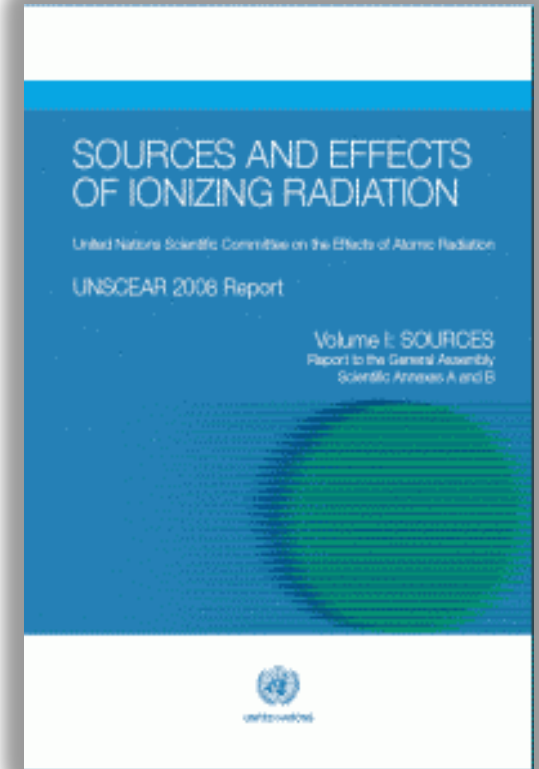
- At an individual level, clinicians must balance their obligation to benefit the patient (the principle of **beneficence**) against their obligation not to cause harm (the principle of **non-maleficence**).
- These twin obligations go hand in hand and are weighed against each other.



Hippocrates (460 BC–377 C)

Radiation safety in health care: unintended and accidental exposures

- **UNSCEAR 2008 Report: "Sources and effects of ionizing radiation" Volume II**
Annex C - Radiation exposures in accidents
 - UNSCEAR has reviewed radiation accidents within a period of >60 years (1945-2007);
 - A large number of fatalities (46) and the highest number of cases of acute injuries (623 cases) was due to accidents occurred during the use of radiation in health care.
 - Other accidents either not recognized or not reported may have occurred.



Mostly radiotherapy accidents



151 CT sequences over 65 minutes

Parents sue California hospital over pediatric CT radiation overdose

By [Cynthia Keen](#)

AuntMinnie.com staff writer

November 20, 2008



A rural California hospital is being sued by parents of a child who underwent a CT exam during an emergency department visit for a neck injury. The parents allege that their 23-month-old boy received radiation burns and has permanent chromosomal damage due to excessive radiation exposure from the CT scan, which took over an hour to perform.

The incident allegedly took place on January 23, 2008, at Mad River Community Hospital in Arcata, a rural town of 17,000 located 290 miles north of San Francisco. Television news anchorman Sam Shane of CBS 13 of Sacramento broke the story on October 30.

Unintended exposures may also happen in nuclear medicine, interventional radiology, and...in paediatric diagnostic imaging !!

Education, training, Q&A, RP culture

California Department of Public Health spokesman Ken August told Tam that the state of California will determine whether any state or federal laws were violated. A hospital in violation can be fined up to \$25,000, a fine that will increase to \$100,000 in January 2009.

The lawsuit has a case management conference set for February 4, 2009. The hospital will not comment due to pending litigation, and the California Department of Public Health did not explain the six-month delay before suspending Knickerbocker's license to either CBS 13 or the *Times-Standard*.

Safety culture in health care settings

To promote safer patient care, professional and organizational cultures in health care settings must

abandon the philosophy of perfect, error-free performance



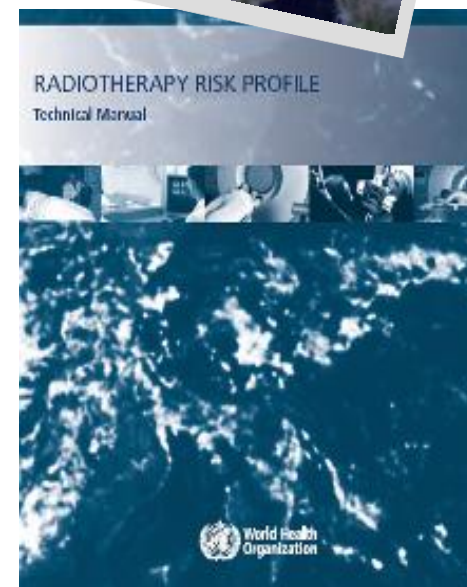
Health care is yet behind other industries in putting safety first when dealing with its consumers



Need for tools: risk profile assessment, risk analysis, classification of adverse events and near misses, reporting and learning systems, ...

Adverse events reporting and learning systems in health care

- **Primary prevention first!**
- **Adverse event reporting & learning** systems enhance patient safety.
- These systems should lead to a constructive response based on **dissemination of lessons & prospective risk analysis** for preventing similar events.



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How to strengthen RP culture in health care?

- The working environment should foster excellence in care- the organizations should continually seek to improve **service quality and safety** in health care delivery.
- **Leadership** is a critical element for establishing RP culture, and **team work** is a key factor for maintaining and strengthening RP culture.
- **Education and training** of health professionals is a key component of RP culture in medicine



Teamwork

Work performed by a group of people with combined effort and pro-organized cooperation working together or a to achieve better res



How to strengthen RP culture in health care? (cont')

- Close **cooperation** between relevant **professional societies, RP regulatory bodies** and **health authorities**.
- Other key factors:
 - individual and collective **motivation** and **commitment**,
 - provision of **means** to support individuals/teams in performing their tasks safely and successfully,
 - encouragement of **stakeholders'** participation
 - ensure **accountability** of the individuals and the organization.



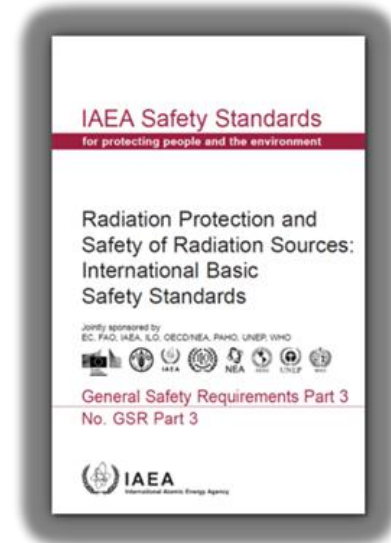
motivation
is what gets you started.

commitment
is what keeps you going.

International Radiation Basic Safety Standards (BSS)



- The BSS are the **benchmark**^(*) for radiation safety requirements worldwide. *(*) not legally binding*
- They represent the culmination of unprecedented efforts towards global **harmonization** of standards for radiation safety.
- Adoption by **8 cosponsoring organizations** completed in 2012, final edition published in 2014, current task: **BSS implementation**.



Safety culture in the new international radiation safety standards (BSS)

Req. 2.51 - to promote and maintain safety culture by:

- (a) Promoting individual and collective commitment to protection and safety at all levels of the organization;*
- (b) Ensuring a common understanding of the key aspects of safety culture within the organization;*
- (c) Providing the means by which the organization supports individuals and teams in carrying out their tasks safely and successfully, with account taken of the interactions between individuals, technology and the organization;*
- (d) Encouraging the participation of workers and their representatives and other relevant persons in the development and implementation of policies, rules and procedures dealing with protection and safety;*



BSS Req 2.51 (cont'd)

(e) Ensuring accountability of the organization and of individuals at all levels for protection and safety;

(f) Encouraging open communication with regard to protection and safety within the organization and with relevant parties, as appropriate;

(g) Encouraging a questioning and learning attitude and discouraging complacency with regard to protection and safety;

(h) Providing means by which the organization continually seeks to develop and strengthen its safety culture.

http://www-pub.iaea.org/MTCD/publications/PDF/p1531interim_web.pdf



Recommendations of the Bonn Conference

Bonn Call for Action

10 actions to improve radiation protection in medicine in the next decade



To foster the application of the new BSS in medical facilities



WHO Global Initiative on Radiation Safety in Health Care Settings



Diagnostic radiology



Interventional radiology

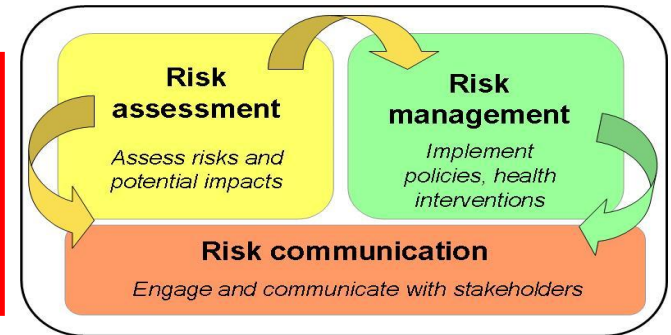


Radiotherapy

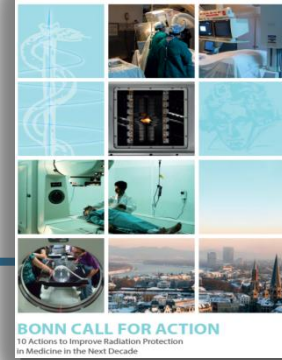


Nuclear Medicine

This WHO initiative is currently focused on supporting the implementation of the
“Bonn Call for Action”



Radiation Safety Culture in the Bonn Call for Action



1. Enhancing implementation of justification of procedures
2. Enhancing implementation of optimization of protection and safety
3. Strengthening manufacturers' contribution to radiation safety
4. Strengthening RP education and training of health professionals
5. Shaping & promoting a strategic research agenda for RP in medicine
6. Improving data collection on radiation exposures of patients and workers
7. Improving primary prevention of incidents and adverse events
- 8. Strengthening radiation safety culture in health care**
9. Fostering an improved radiation benefit-risk-dialogue
10. Strengthening the implementation of safety requirements (BSS) globally

http://www.who.int/ionizing_radiation/about/14-2649_bonncallforaction.pdf?ua=1

<https://rpop.iaea.org/RPOP/RPoP/Content/News/bonn-call-for-action-joint-position-statement.htm>



Action 8: Strengthen radiation safety culture in health care

- a) Establish **patient safety** as a strategic priority in medical uses of ionizing radiation, and recognize leadership as a critical element of strengthening radiation safety culture;
- b) Foster closer **co-operation between radiation regulatory authorities, health authorities and professional societies**;
- c) Foster closer **co-operation on radiation protection between different disciplines** of medical radiation applications as well as between **different areas of radiation protection** overall, including professional societies and patient associations;
- d) Learn about **best practices** for **instilling a safety culture from other areas**, such as the nuclear power industry and the aviation industry;
- e) Support integration of **radiation protection aspects in health technology assessment**;
- f) Work towards recognition of **medical physics** as an independent profession in health care, with **radiation protection responsibilities**;
- g) Enhance information exchange among peers on radiation protection and safety-related issues, utilizing **advances in information technology**.



Patients for Patient Safety News

February 2013

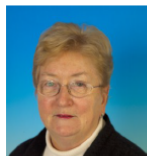
**Stakeholders'
engagement
to improve
safety culture
in health care:**

**Patients'
associations
are key
stakeholders**

Workshop on "RPCM, 30 November – 2 Dec

Welcome!

Margaret Murphy, Lead Advisor, Patients for Patient Safety (PFPS)



Happy New Year to all and welcome to the first edition of PFPS News for 2013. We have lots of good news to share with you.

The PFPS Steering Group held a meeting in January. It was a welcome opportunity for the Group to get to know Nittita Prasopa-Plaizier, the new PFPS Technical Lead. Nittita is truly passionate about the work and ethos of PFPS and she will be a wonderful asset presenting PFPS as an

Look inside:

- Infection Prevention Conference, Benin
- Patient Safety in Slovakia

Radiation Protection in Medicine

Nittita Prasopa-Plaizier, PFPS Technical Lead, Maria Perez, WHO Dept. of Public Health and the Environment, Margaret Murphy, PFPS Lead Advisor, and Stephanie Newell, PFPS Champion, Australia



In December 2012, Nittita Prasopa-Plaizier, Margaret Murphy and Stephanie Newell represented the PFPS programme at a workshop "Radiation risk communication in paediatric imaging", at the "International Conference on Radiation Protection in Medicine", held in Bonn, Germany. The conference was organized by the International Atomic Energy Agency (IAEA), co-sponsored by WHO and hosted by the Government of Germany. It was attended by about 600 people from over 90 countries.

with the medical purpose". Radiation protection in medicine aims to ensure medical procedures relating to radiation are performed safely through correct indication, dosing and calibration of radiotherapy machines, and strict adherence to procedures.

Margaret presented the patients' perspective to about 60 experts at the workshop organized by WHO's Department of Public Health and the Environment. Nittita worked with Dr Maria Perez to collaborate on the planning and workshop organization. Margaret again presented at a "round table" session at the conference on patients' role in radiation safety.

Stephanie's participation at both events was



Side Event "Imaging for saving kids" at the 68th World Health Assembly (2015)

Health authorities, health care providers (radiologists, medical physicists, radiographers), manufacturers, and patients' representatives
 4 Member States and 9 NGOs in Official Relations with WHO

68th World Health Assembly
 12:30 - 14:00, Tuesday, 26th May 2015
 Room XXIV, First Floor, E Building, Palais des Nations, UNOG

Imaging for Saving Kids -

the Inside Story about Patient Safety in Paediatric Radiology

Let's talk about...


Contact: Ms. M. Herath
 mherath@paedradiology.org

Medical imaging enables earlier diagnosis and offers less invasive treatment for sick children. Timely access to basic life-saving procedures, e.g. ultrasound and computed tomography (CT) is important. While resources vary between regions and settings, the stakeholders are improving access to these imaging procedures.

Children are more sensitive to ionising radiation-related health risks, e.g. x-ray exposure during CT scans. Whenever appropriate, imaging without ionising radiation is used, e.g. ultrasound or magnetic resonance imaging (MRI). Good communication with the patients and carers facilitates informed decision-making and minimises procedure delay or refusal due to unfounded concerns. Every procedure should be justified, tailored and optimised.

This session brings together policymakers, health care providers and patients to jointly discuss what can be done to improve health and service delivery by maximising the benefits and minimising the risks when using medical imaging in children and how this can be achieved.

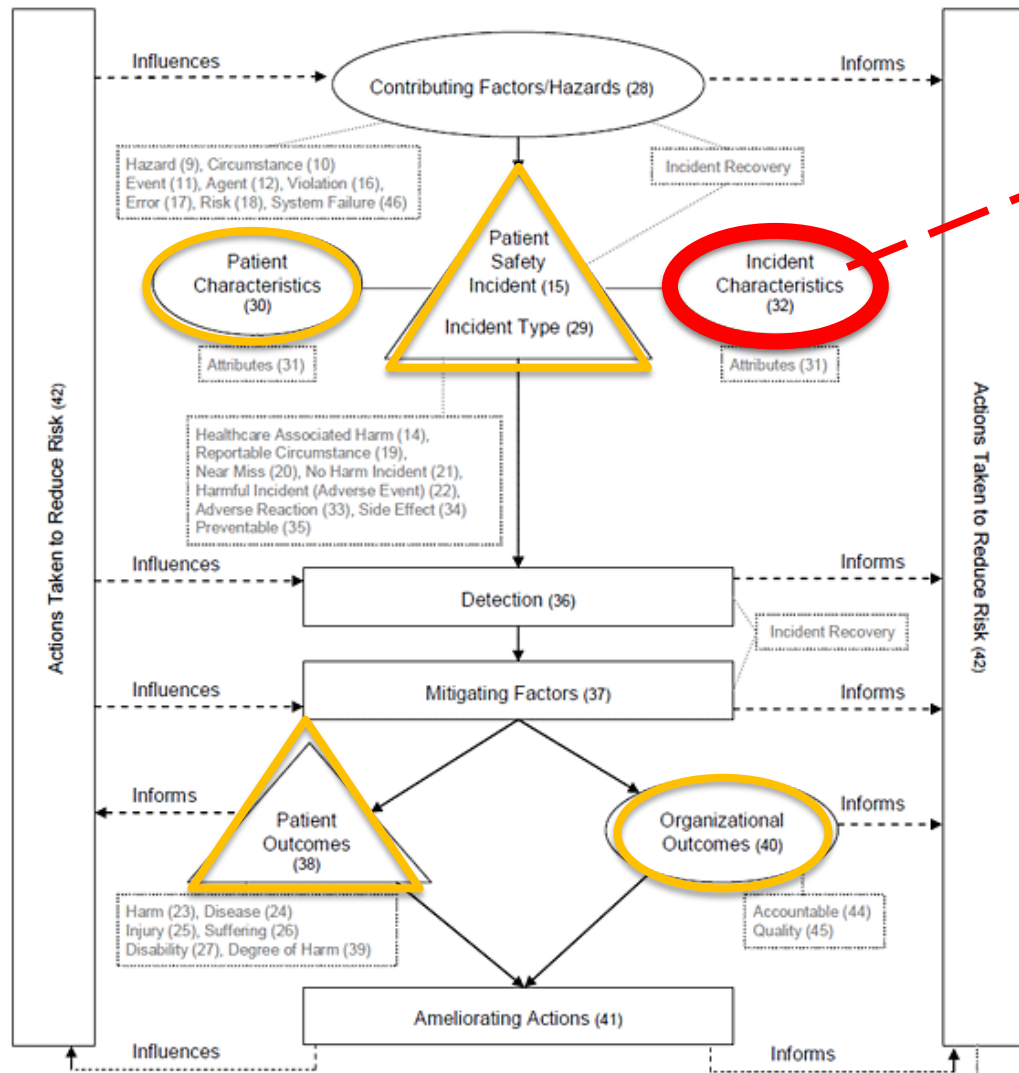
Session will be conducted in English and Spanish




Workshop on "RPCM, 30 November – 2 December 2015, Geneva, SWITZERLAND

Conceptual Framework for the International Classification for Patient Safety

Classification (1), Concept (2)
 Class (3), Semantic Relationship (4)
 Patient (5), Healthcare (6)
 Health (7)
 Safety (8)
 Patient Safety (13)



This component of the framework is highly dependent on the area of health care / discipline

The Conceptual Framework (CF) for the International Classification for Patient Safety

□ System Resilience (Proactive & Reactive Risk Assessment)

△ Clinically meaningful, recognizable categories for incident identification & retrieval

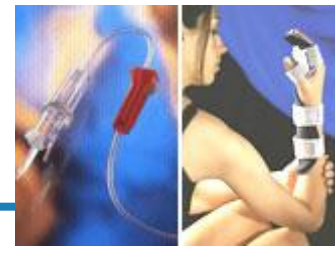
○ Descriptive information

▭ Relevant key concepts with preferred terms

Resilience (43)
 System Improvement (47)
 Root Cause Analysis (48)



World Health Organization



Minimal Information Model for Adverse Event Reporting in Health Care

WHO Inter-Cluster Task Force

Patient Safety

Pharmacovigilance

Safety in surgery

Injection Safety

Radiation Safety

Safety in vaccination

Blood Safety

Human-derived

Technovigilance

*To integrate MIM with existing reporting & learning systems for radiation safety adverse events (**SAFRON, SAFRAD**)*



World Health Organization

The ongoing RPCM Project

- To collect feedback for the development of a **framework document** providing **guidance** to establish and maintain **RPCM**.
- A series of **regional workshops** in different regions
 - 2015: Latin America, **Europe**
 - 2016: Africa, Eastern Mediterranean,
 - Asia, North America...



