

CCRI Report

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International des
Poids et
Mesures



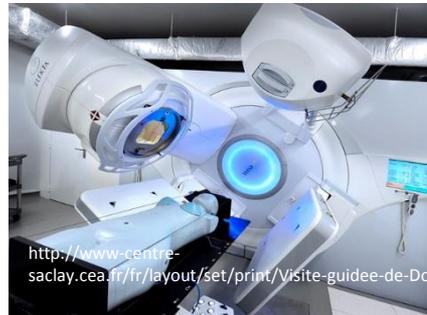
Global forum for progressing the state-of-the art

“the Consultative Committee for Ionizing Radiation includes all NMIs playing a major role in the establishment of equivalence and guides NMIs with emerging capabilities”

The CCRI’s vision is a world where ionizing radiation can be used for the benefit of humankind, confident that the risks are constrained by accurate measurement



>4 000 000 000
diagnostic X-
rays & nuclear
medicine
procedures p/a

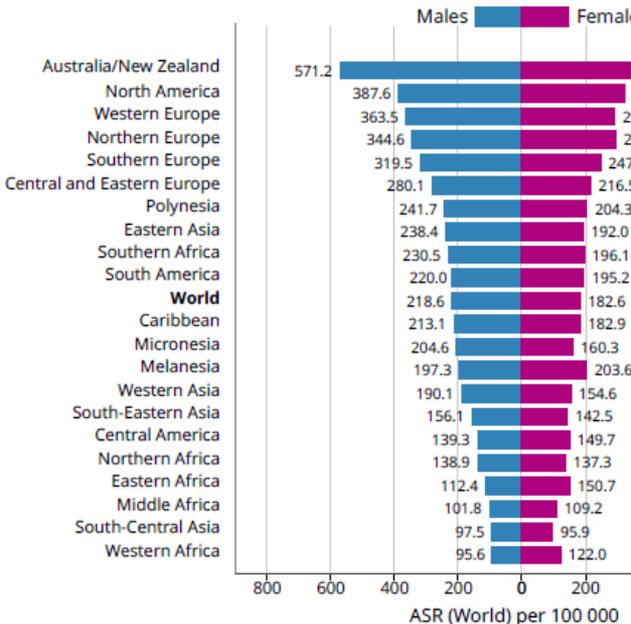


>4 000 000
cancer
treatments p/a

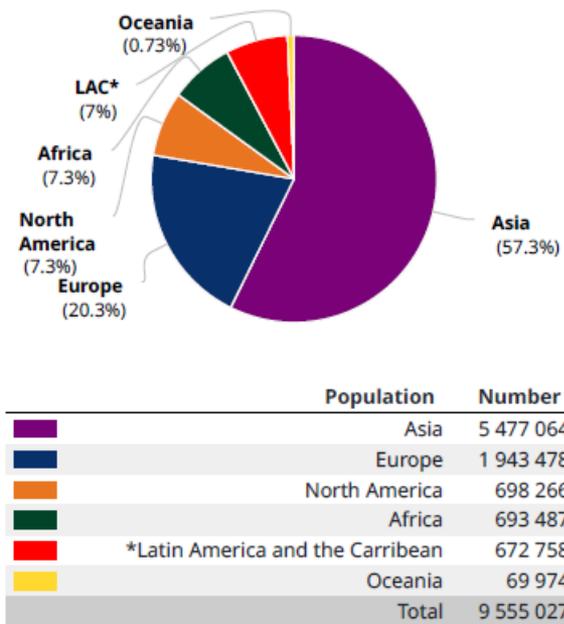
>11 million
radiation
workers

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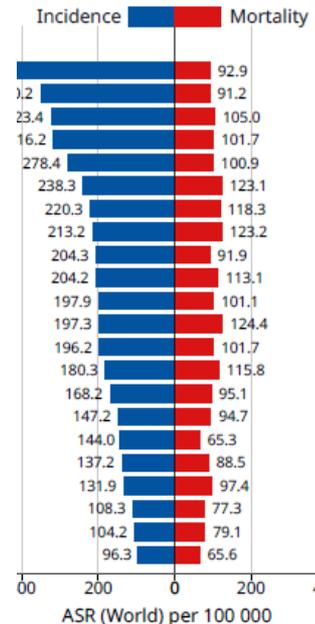
Age standardized (World) incidence rates, all cancers



Mortality, both sexes



Incidence and mortality rates, all cancers



Primary standard (BIPM) (uncertainty 0,2 %-0,6 %)

NMIs (uncertainty 0,6 %)

Hospitals (uncertainty 1,5 %)

Patients (uncertainty needed: better than 5 %)

The Global Cancer Observatory - All Rights Reserved, September, 2018.

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Radiation exposures of aircrew in high altitude flight

Lawrence W Townsend
[Journal of Radiological Protection, Volume 21, Number 1](#)



Well-characterised quasi-monoenergetic neutron (QMN) sources reaching into the energy domain >40 MeV

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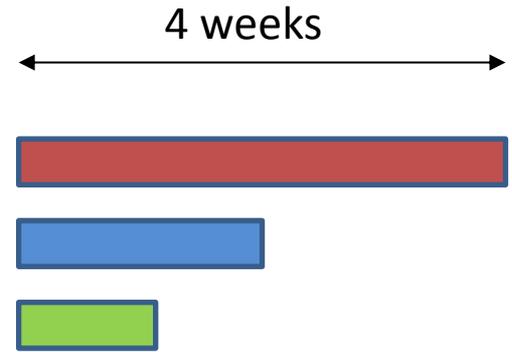
- ◆ The CCRI was made more inclusive by increasing
 - Membership to 8 (Countries active in and with full membership of all three Sections)
 - Official Observers to 14
 - Liaisons include IAEA, ICRU and JRC-Geel



Global forum for progressing the state-of-the art

- ◆ The operation of the CCRI has been streamlined

- 2015: 20 working days
- 2017: 10 working days
- 2019: 5 to 6 working days



- ◆ The CCRI meetings are aligned with international conferences, i.e. in 2019 it will be held back-to-back with the ICRM conference



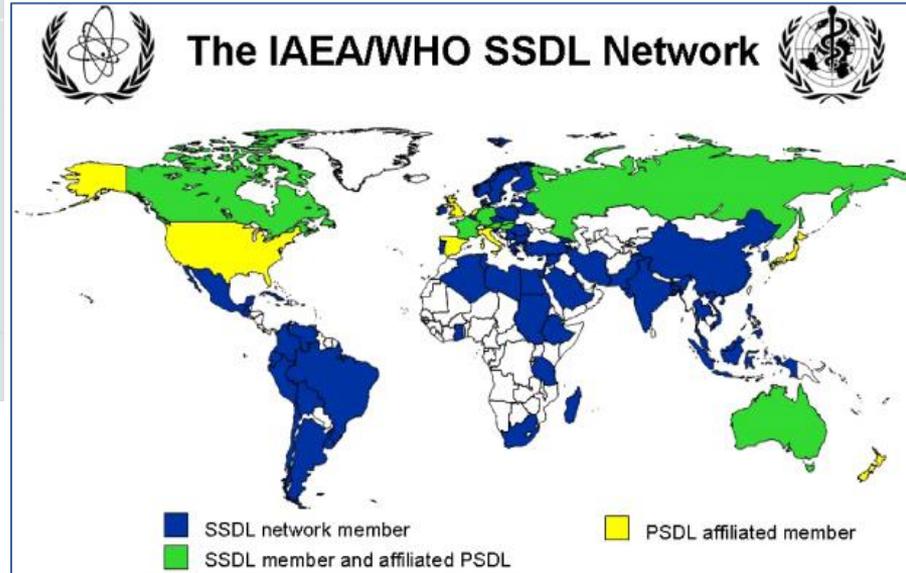
Facilitating dialogue between NMIs and stakeholders

- ◆ Joint use of DOSEO Facility
 - The use of accelerators for radiation therapy is growing – 11400 in use
 - An agreement has been signed with CEA-LIST for access to DOSEO
 - Beam characterization and instrument validation have been completed
 - The first two comparison exercises completed (KRIS and METAS), LNHB to start soon



Facilitating dialogue between NMs and stakeholders

109 of the 193 states listed by the UN participate in the BIPM's activities, covering 98 % of the world's GDP according to 2016 World Bank data.



Global comparability of measurements

- ◆ Marie Curie was born 150 years ago on 7 November 1867
- ◆ The first international standard for ionizing radiation was prepared by Mme Curie and was placed at the BIPM in 1913
- ◆ It was the basis of the international measurement system for about 50 years – the original Key Comparison Reference Value

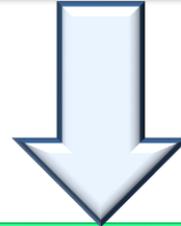


Global comparability of measurements

Stakeholders:

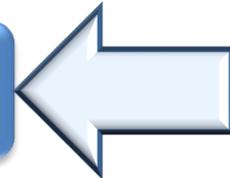


Input to CCRI



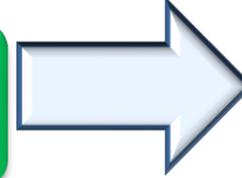
Influences developments in

The CIPM MRA
Review



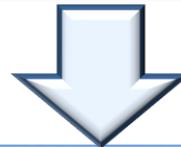
Implements

CCRI Strategy
Committee & RMO
TCs



IR Metrology at
NMIs and RMOs

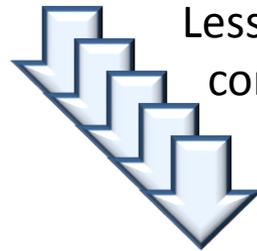
Improves



Efficiency of CIPM
MRA

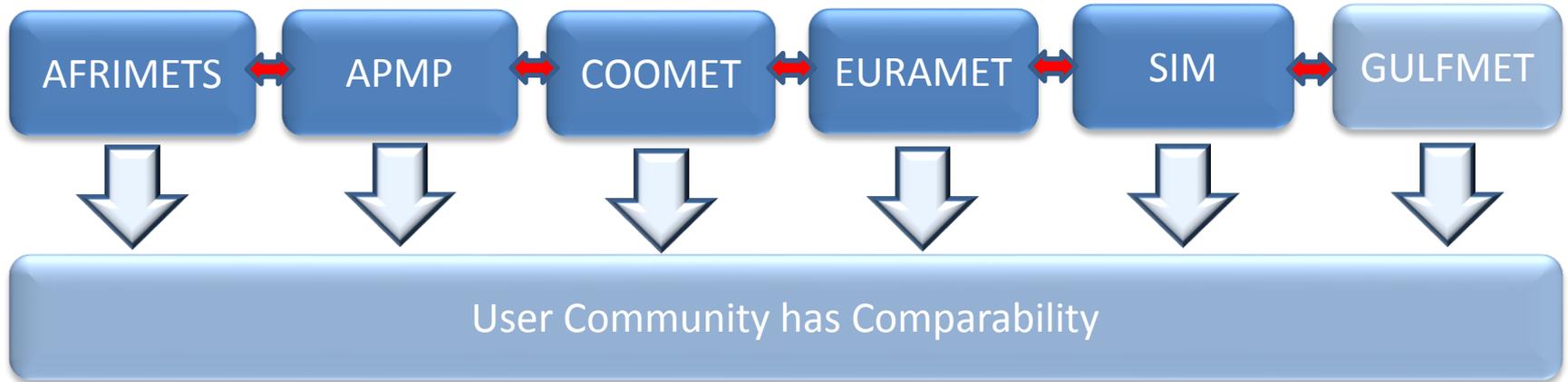
Global comparability of measurements

CC Comparisons: 3 participants per RMO



Less time to complete

Pilots RMO comparisons



Global comparability of measurements

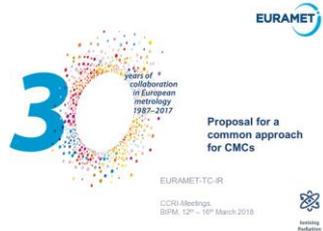
- ◆ Implementing the CIPM MRA review

Radioactivity MMM

Successful participation in a comparison for a 'red' entry is accepted as evidence that the NMI can also standardize 'green' entries using the same method (but not vice-versa)

Radionuclide	Method 1	Method 2
Be-7	●	
Be-10		●
C-11	●	
C-14	●	
etc		

Risk Based Review			
	High <i>U</i>	Medium <i>U</i>	Low <i>U</i>
Facile	Intra review	Intra + expert	Selected RMO Expert(s)
Complex	1xRMO TC	1x RMO TC + expert	1x RMO TC + experts
Intricate	2xRMO TCs	3xRMO TCs	4xRMO TCs



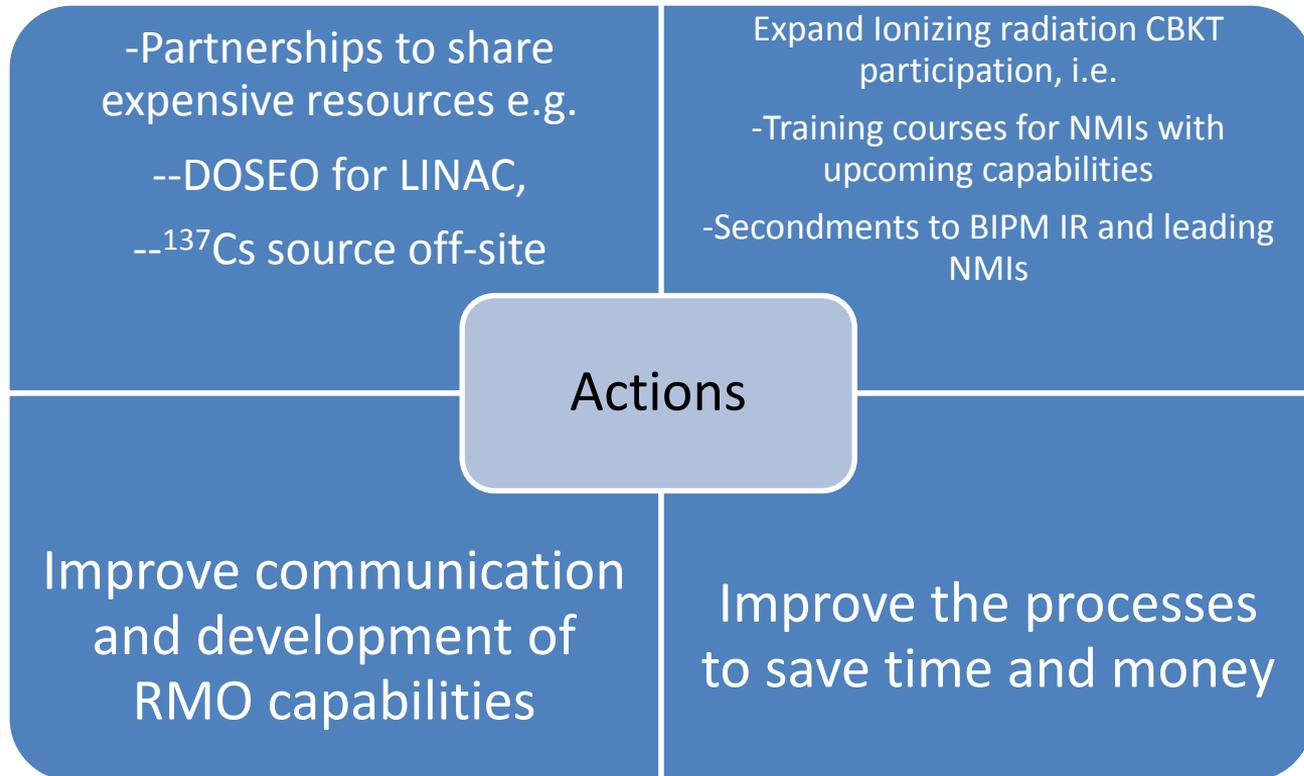
“Core Quantity or Comprehensive CMCs”



Supports large number of services: the link is described in the Quality System

Global comparability of measurements

◆ Main Future Points



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Bureau
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| **Poids et**
| **Mesures**

