# CCRI summary to CCU

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Bureau
International des
Poids et
Mesures

# Quantities and units in ionizing radiation

## Decides

CGPM / CIPM / CCU

## Advises

International Commission on Radiological Protection

- Publishes recommendations and guidance on radiation protection

## Recommends


International Commission on Radiation Units & Measurements

- Develops quantities and units for therapy, imaging and radiation protection
- Provides reference data

## Implements

CCRI

- Co-ordinates the development, comparison and promulgation of national measurement standards

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# Introduction of ICRU 90


**The most significant change in ionizing radiation dosimetry in many years**

- New key data that impact primary standards
- Changes to standards and uncertainties
- The CCRI has co-ordinated the implementation of the report to maintain a harmonized international system

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# Other CCRI activities

| Organization | Comparison | Pilot | Protocol | Exercise | Draft A | Draft B |
|---|---|---|---|---|---|---|
| APMP | Air kerma, low energy x-rays | NMIJ | | | | |
| APMP | Air kerma, medium energy x-rays | INER | | | | |
| APMP | Absorbed dose to water, Co-60 | INER | | | | |
| APMP | Air kerma, Cs-137 | KRISS | | | | |
| APMP | Air kerma, brachytherapy | NMIJ | | | | |
| APMP | Air kerma, protection level | OAP | | | | |
| APMP | ISO4037 air kerma | ARPANSA | | | | |
| APMP | Fe-59 | NMIJ | | | | |
| APMP | Cs-134 and 137 in rice | NMIJ | | | | |
| | | | | | | |
| CCRI(I) | Absorbed dose to water, high dose | NRC | | | | |
| CCRI(II) | Ge-68 | NIST | | | | |
| CCRI(II) | Pa-231 | NPL | | | | |
| CCRI(II) | Rn-222 | LNHB | | | | |
| CCRI(II) | Tc-99 | NPL | | | | |
| CCRI(II) | Emission from large area sources | ENEA | | | | |
| CCRI(II) | H-3 by TDCR | LNHB | | | | |
| CCRI(II) | Cs-134 and Cs-137 in wheat | NMIJ | | | | |
| CCRI(II) | Rn-222 | LNHB | | | | |
| CCRI(II) | Co-57 | IAEA | | | | |
| CCRI(II) | I-131 | IAEA | | | | |
| CCRI(II) | Cs-137 and K-40 in rice | KRISS | | | | |
| CCRI(III) | Neutron source emission rate | NPL | | | | |
| CCRI(III) | Ambient dose equivalent | PTB | | | | |
| | | | | | | |
| COOMET | Air kerma - rad prot N/RQR series | BelGIM | | | | |
| COOMET | Air kerma - rad prot (other qualities) | PTB | | | | |
| | | | | | | |
| EURAMET | Air kerma - Co-60 | METAS | | | | |
| EURAMET | Absorbed dose to water - Co-60 | METAS | | | | |
| EURAMET | Personal dose equivalent | PTB | | | | |
| EURAMET | Air kerma - Co-60, Cs-137 rad prot | IST-LPSR | | | | |
| EURAMET | Ambient dose equivalent | VINS | | | | |
| EURAMET | Ho-166 | CMI | | | | |
| EURAMET | I-131 | ENEA | | | | |

- An active programme of comparisons
- Faster procedures for reviewing reports
- Consensus on an approach for the interpretation of CMCs
- ‘How far the light shines’ policies
- A new streamlined meeting structure

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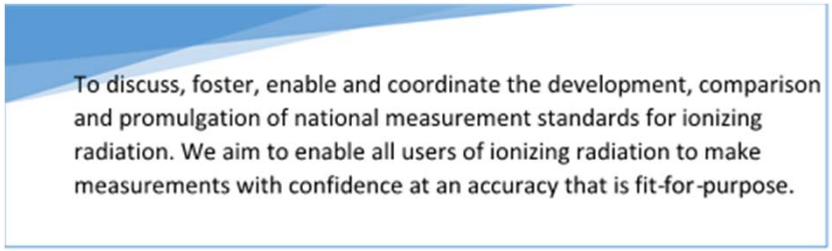
# A new user-community focused strategy

Digitization of data acquisition and analysis, and new technologies for electrical current measurement

New cancer treatment modalities (proton therapy, radiopharmaceutical therapy)




Requirements for knowledge transfer to smaller NMIs/DIs

Environmental radioactivity and decommissioning of legacy nuclear sites

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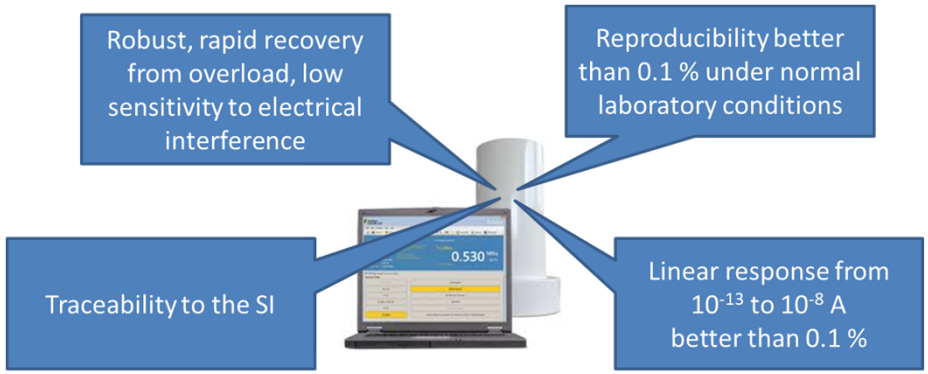
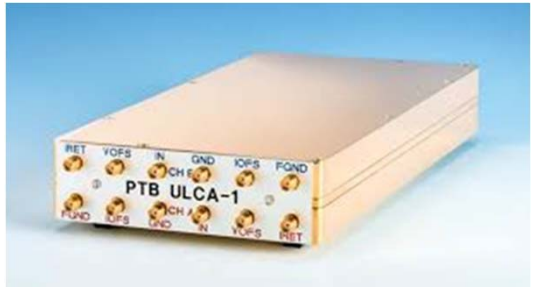
https://www.bipm.org/utils/en/pdf/CCRI-strategy-document.pdf

# New CCRI-CCEM collaboration

- Radionuclide metrology relies on ionization chambers
- Issues with linearity and obsolete instrumentation
- CCRI-CCEM workshop at NIST in November 2018
- New CCRI-CCEM Task Group to support the introduction of innovative technology

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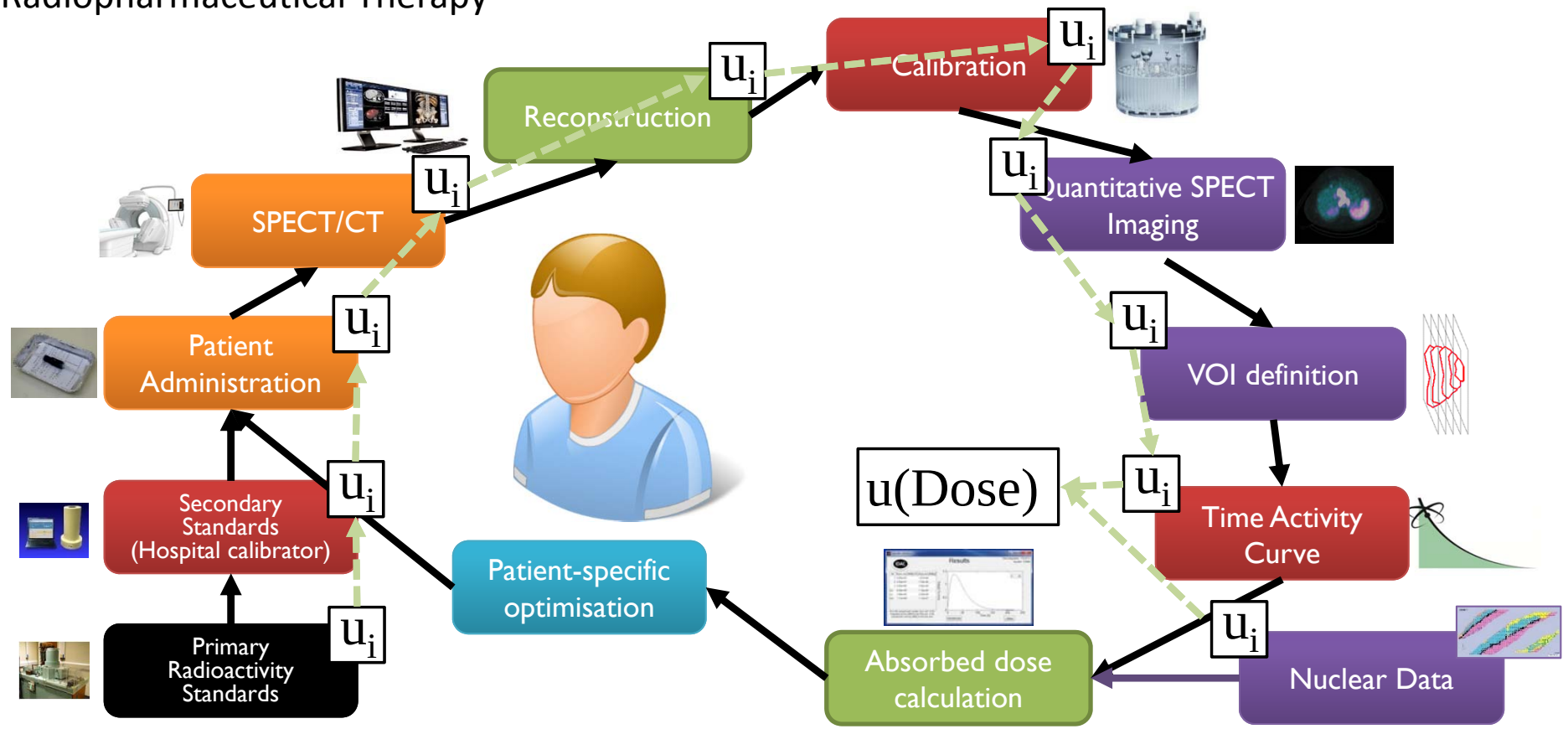
# A new Working Group - Dosimetry for Radiopharmaceutical Therapy

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