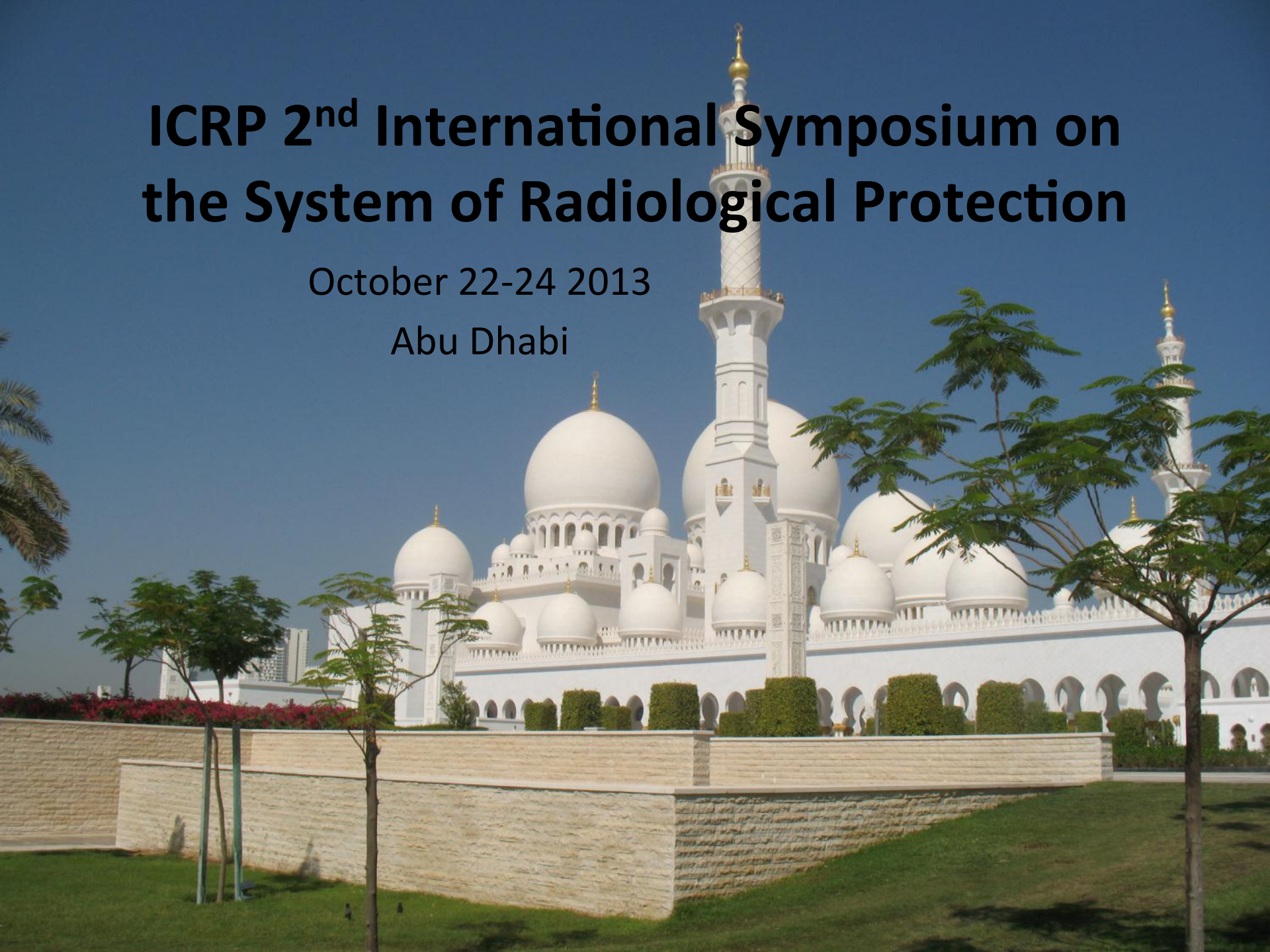

ICRP 2nd International Symposium on the System of Radiological Protection

October 22-24 2013

Abu Dhabi

ICRP Main commission

- 270 members of ICRP!
- Limited funds
  - Publications at low/no cost
  - Task Groups at low/no cost
- Future strategy
  - Evolution and application of RP system
  - New strategic plan in 2017
- 3rd ICRP symposium: Seoul 2015

- Committee 1
  - New evidence on radiation effects
    - Circulatory, inflammatory, etc.
  - New TG on “Terminology and Definitions”
    - Web-based glossary (in English)
- Committee 2
  - Recalculating ALL dose coefficients
  - New phantoms
    - Fetus, child, pregnant woman
- Committee 3
  - New publication on cone beam CT

- Committee 4
  - ICRP recognises problems with the system of exposure situations
    - Especially “existing exposure situations”
  - Future work programme
    - Redraft of ICRP 109 and 111
    - Security screening (Publication 125)
    - NORM TG and report in 2015
    - Cosmic radiation
    - Radon
    - “End user reports”
    - WG on tolerability of risk
- Committee 5
  - See later

Tissue reactions: the road from science to protection

- Circulatory disease
  - 0.5 Gy threshold (5 yr latency)
  - Risk 2.5 – 8.5% (cf 5% for cancer)
- Lens of the eye
  - Tissue reactions and stochastic effects
  - % of workers >20 mSv/y
  - Eye damage in 50% of int. radiologists (IAEA)
  - Issues (IRPA)
    - Pre-existing eye conditions
    - Future compensation claims
    - Standardised dose recording
    - Mandatory PPE?

Recovery Preparedness and Response following Fukushima

- Public communication issues
  - Conflicting standards and advice
  - Confusing units and terminology
  - Priorities (eg children)
- Measurements
  - focused on persons
    - Many many personal dosemeters
    - 10 million bags of rice!

Recovery Preparedness and Response following Fukushima

- Off-site remediation (not “clean-up”!)
  - <20 mSv/y → <1 mSv in long term
  - 20 – 50 mSv → <20 mSv is first goal
  - >50 mSv → no prospect of return
- Various decontamination techniques
  - 30 to 90% effective
- 20 “baseball stadiums” of waste so far

Recovery Preparedness and Response following Fukushima

- Preliminary conclusions
  - Internal doses generally low
    - Due to food restrictions
  - External doses have a “long tail”
    - Average dose is not sufficient information
    - Need a lot of measurements
  - Generational difference
    - Old people want to return
    - Young people want a fresh start

NORM issues in the real world

- Planned vs. Existing Exposure situations
  - Not important!
  - Independent of method of control
- NORM can be managed (regulated) as a PES
  - Decision for national regulators
  - "use the (regulatory) tools"
  - Dose Reference levels 1 – 20 mSv/y
  - NORM at lower end (<10 mSv/y)
- FRACKING!

What do we need from ICRP in medicine?

- Use of effective dose
  - For optimisation and comparisons
  - Not for individual risk or therapy
- Increasing use of (interventional) CBCT
- Are medical doses reducing?
  - UNSCEAR is unclear
  - Some evidence from national reports

What do we need from ICRP in medicine?

- CT
  - 84 million CT scans per year in US!
  - Doses sufficient to make epidemiology worthwhile
  - But beware reverse causation!
- Other issues
  - Lack of Medical Physicists
  - Need for more RP training
  - Increasing Nuclear Med doses – staff and patients
  - Pressures on hospitals, emergency medicine, etc.

The ICRP approach to the environment

- 12 reference animals/plants (RAPs)
- Derived Consideration Reference Levels (DCRLs)
  - From < 1 μGy/h to 1 Gy/h depending on RAP
- Lab studies do not agree with field studies
- Voxelised RAP dosimetry models
- "Vlad the crab"!
  - Where does it end?


FANR
ICRP 2013
ICRP 2013
2nd International Symposium on the System of Radiological Protection
October 22 - 24, 2013 - Abu Dhabi, UAE