STATE PERSPECTIVES ON LOW DOSE RADIATION RISK COMMUNICATION

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Developing a Long Term Strategy for Low-Dose Radiation Research in the United States

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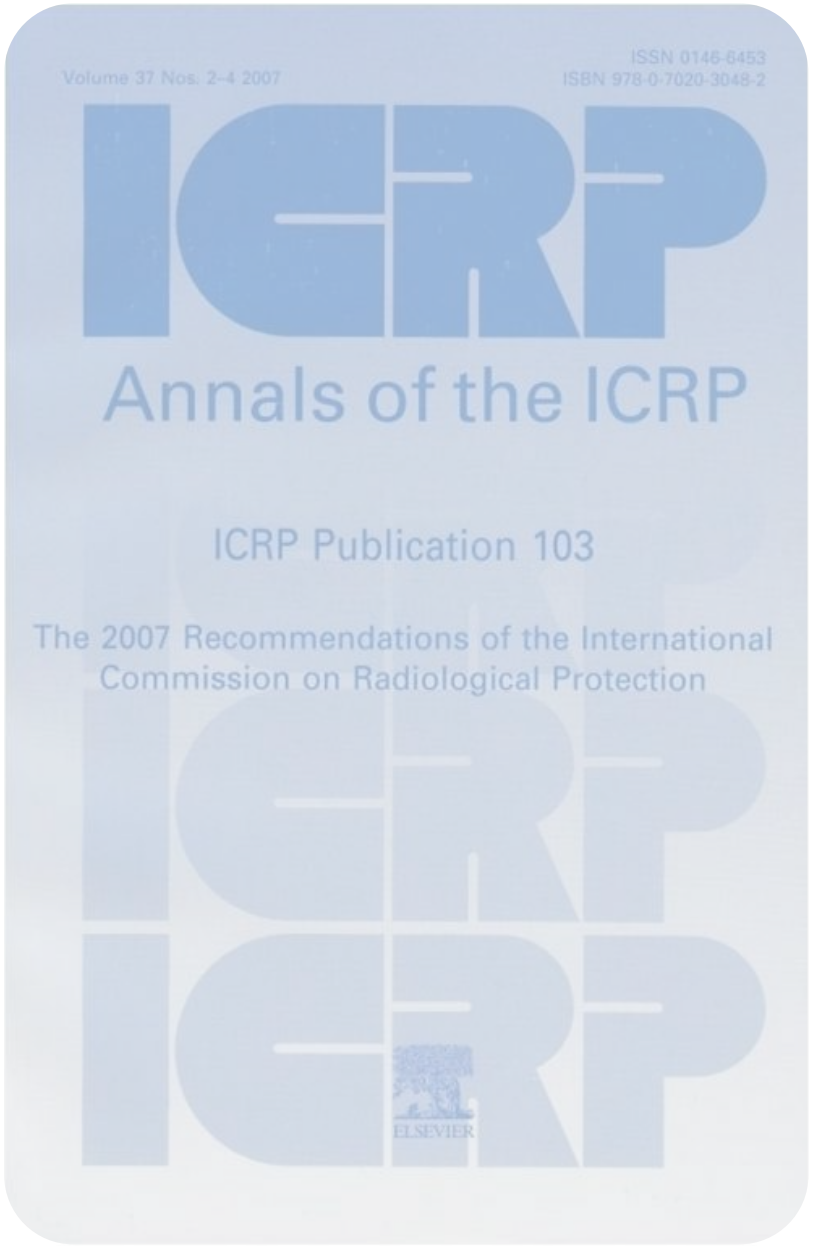
STATE REGULATION GOALS

Protect Health and Safety

- Public
- Workers
- Responders
- Environment

Wide range of risk profiles

- Child vs. Adult
- Pregnancy
- Environment



DOSE LIMITS AND THRESHOLDS

Based on scientific studies outlining risks from potential exposures

Agencies and organizations attempt to determine “acceptable risk”

Aim to apply ICRP recommendations to exposure situations:

Justification and Optimization

(ICRP, 2007. The 2007 Recommendations of the International Commission on Radiological Protection. ICRP Publication 103. Ann. ICRP 37 (2-4).

DOSE LIMITS AND THRESHOLDS

As
Low
As
Reasonably
Achievable

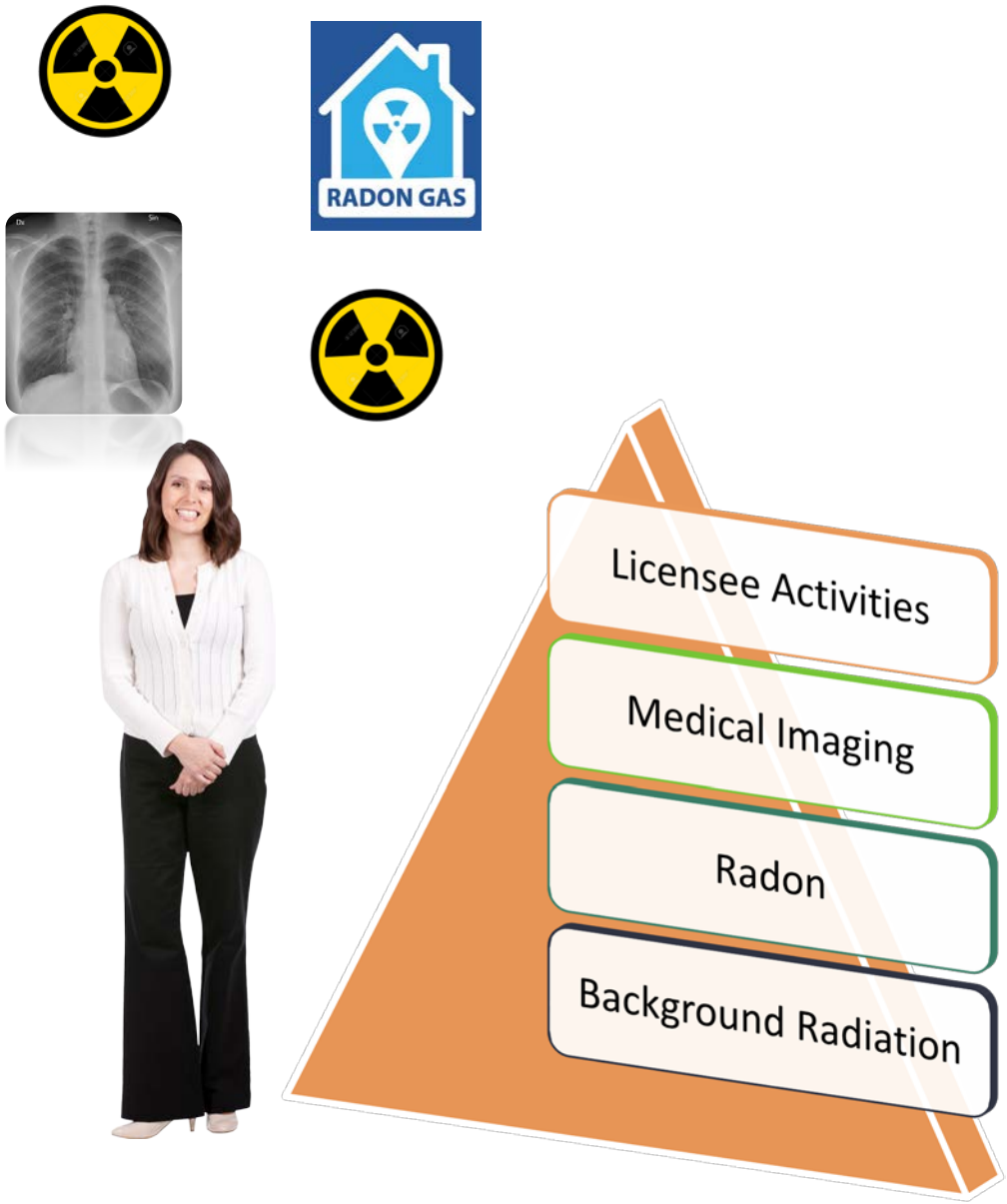
Reasonable depends on risk/benefit balance of exposure with other social and economic factors

Limits/Thresholds may vary across industries:

- Healthcare
- Industrial Uses
- Energy Production
- Emergency Preparedness and Response

Need to communicate why it may be appropriate to have higher values in some situations and not others

Low dose range makes communication related to justification and optimization less inherent



POTENTIAL FOR CUMULATIVE EXPOSURES FROM MANY SOURCES

Each regulated entity is responsible for their portion of public and worker exposures

Workers

Regulatory attempts to account for cumulative occupational exposures

Public

Individuals may interact with multiple exposure sources resulting in higher than 1mSv cumulative dose overall

INTERWOVEN FRAMEWORK HAS BEEN ESTABLISHED – NEED DATA TO HELP UNRAVEL

1. Disparity in current agency regulations basis ranging across:

ICRP 2 --- ICRP 26/30 --- ICRP 103

2. Changing one regulation will cascade to impact many others

3. Costs and burdens to entire community to unravel

- For both regulatory agencies and licensees

Does not mean we shouldn't try:

Need data to support cost/benefit prioritization of regulatory changes

Find ways to articulate risk and findings within the current complexity

HUMAN BEHAVIOR-BASED RESEARCH NEEDS TO IMPROVE COMMUNICATION

Can we understand more about human behavior and perceptions related to radiation to:

1. Help public accept scientific recommendations and limit tendency to request overconservative measures
2. Address perceptions vs. scientific understanding
3. Approach risk in a holistic manner – radiation risks balanced with other concerns or impacts
4. Understand how perceptions change with individual vs. population-based risks

SUMMARY

Lower dose limits/thresholds may be necessary in single situations to account for potential for added risk from cumulative exposures

- More effectively apply an individual's or population's cumulative exposure potential to overall basis
- Understand how increased limits could affect potential cumulative exposures from regulated activities

The current regulatory framework based in LNT is well established and interwoven

- Attempts to impact any area of regulation will likely necessitate careful coordination
- Can we quantify value of changing specific areas of regulation and prioritize coordinated efforts?

Public perception often influences conservatism in regulatory aspects of radiation protection

- Greater understanding of public perceptions of radiation risk may overcome tendency for the public to request overconservative measures and accept new risk considerations

THANK YOU

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