The image shows the spine and front cover of a book. The spine is a vibrant red color with some wear and tear. The front cover is a textured, greyish-green color. The book is set against a dark background.

**Ethics Foundational for RP in
Medicine: Decisive Interventions
from WHO, ICRP, and the IAEA**

*Prof Jim Malone
Trinity College Dublin, Ireland*

Agenda

Now recognised that Ethics Foundational by:

WHO Policy Brief (2019/22)

ICRP Pub 138 (2018) & 157 (2025)

IAEA @ conclusions to X-Ray Vision Bonn+ meeting

Et al: WMA Medical Oath, Decl of Geneva 2017; IRPA Safety Culture for RP; ESR; Several Radiographer/ Technology societies; Value sets etc

- Until recently, the System of RP in Medicine resisted ethical, societal, and even medical concerns.

Deregulation, and the International Order



What is Ethics

ETHICS IS:

Essentially practical

Obligations v ordinary

And v numerous

Rather, how should Dr X deal
problem Y TODAY.

SOME ISSUES:

Personal and Professional

Personal Compass not
sufficient

Value Pairs

dignity/ autonomy

beneficence/ non-
maleficence

prudence/ precaution

justice/ solidarity

transparency-accountability/
honesty

inclusiveness/ empathy

World Health Organisation (WHO) and Radiation Protection in Medicine

WHO: Member of UN Family

- Patient Centred Care
- Strengthen radiation protection of the public, patients and workers worldwide
- Cosponsors and works jointly with other international bodies and professions

- Issued Policy Brief (2022) on Ethics in Medical Radiological Imaging

- EQUITY in the distribution of resources

- Ethics as the lens



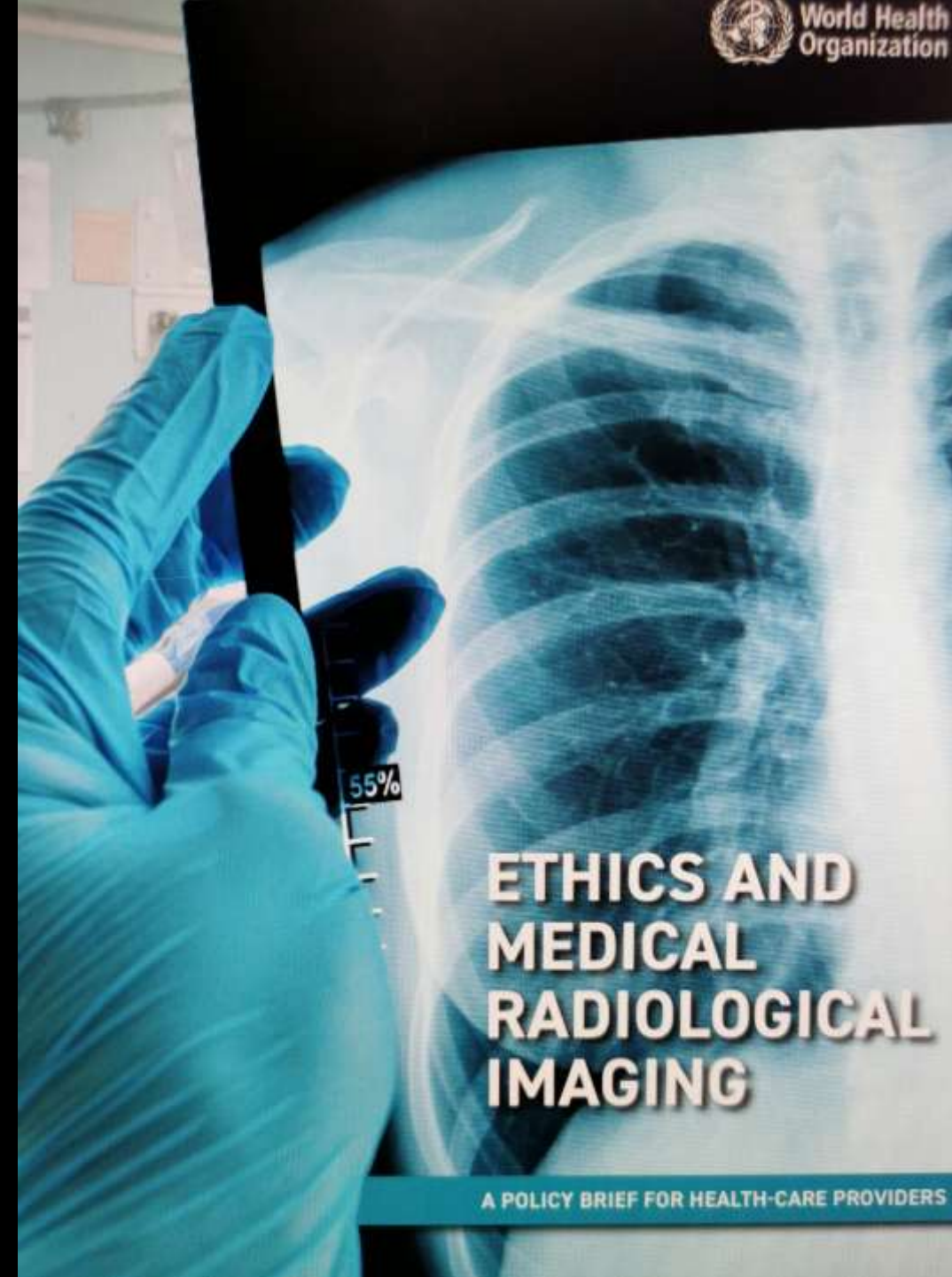
WHO & Ethics in Medical RP

Policy Brief (April 2022)

- Med Imaging procedures are essentially medical acts
- Umbrella for all activity. No ethics free space in medicine.
- Medical language recognised: (End of life, reproduction, consent)
- Human Rights/ Societal Expectations; Precedent
- WMA Declaration of Geneva

ETHICS Essential when

- Planning Patient Centred Services
- Law/ Protocols confused/ lack maturity/ inadequate
- What ought to be done can't be done



Context: What is Safe?



International Commission for Radiological Protection (ICRP) Radiation Protection in Medicine

ICRP: Independent Registered Charity

- Created and developed the system of RP in series of 'RECOMMENDATIONS' since 1928
- First was in 1928 (3.5 pages) and most recent in 2007 (~ 300 pages)
- Justification, optimisation, dose limits, -----
- Values for dose limits
- Issued Reports on Ethics in RP in general (2018) & in Medical RP (2025)
- Ethics now firmly part of the system

Value Pairs

dignity/ autonomy

beneficence/ non-maleficence

prudence/ precaution

justice/ solidarity

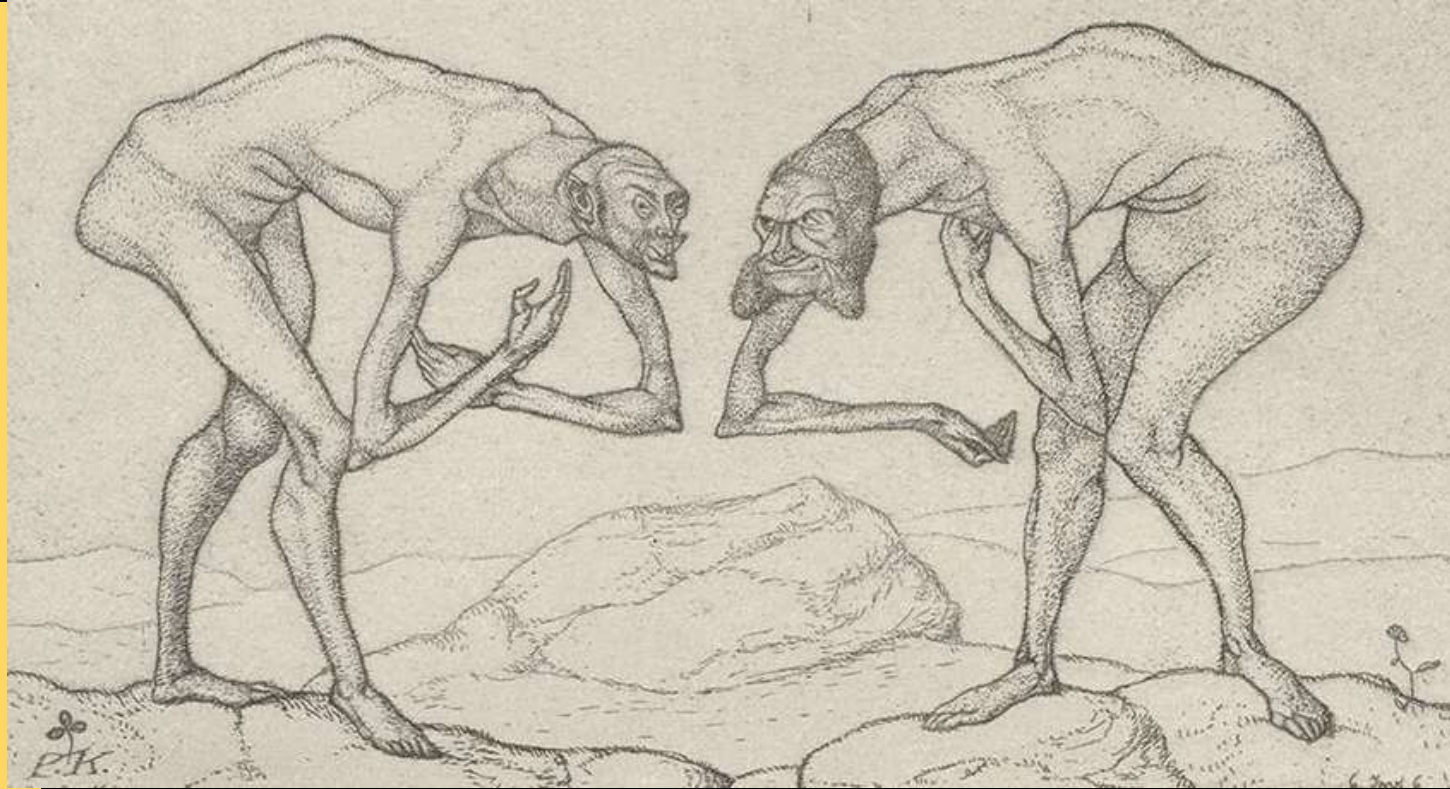
transparency-accountability/
honesty

inclusiveness/ empathy

ICRP Language, The Law, and Ethics

OLD
Science (Incomplete)
Values (often personal)
Experience

NEW
Science (Incomplete)
ETHICS (Professional)
Experience



- **Vatican tendencies in ICRP**

- Regulators can have undue deference to field professionals and vice versa
- This is facilitated by the opaque language of legal RP. The language of ethics could help level the pitch

International Atomic Energy Agency (IAEA) and Radiation Protection in Medicine



IAEA: Member of UN Family

- Peaceful uses of Nuclear Energy including in Medicine
- Strengthen radiation protection of public, patients, workers, worldwide and cosponsored with WHO/ILO
- Converts ICRP recommendations into advice, testable standards (and regulation)
- Nobel Peace Prize for (not) finding weapons of Mass destruction in Iraq
- Significant impact on Radiation Protection in Medicine in Ireland.
- Ethics Generally sidelined by IAEA. (Also by EC regulatory division, IEC, and in 2007 ICRP Rec)
- Ethics must become the lens
- Irish Australian Artist Fintan Macgee

IAEA: X-Ray Vision
 Conference /Bonn+ Dec
 2025

- Ethics Session
- Concluding Session Emerging Priorities

Clarity of Bonn+		Emerging priorities		
Patient-Centeredness:	Ethics:	Communication:	Integrated intelligence:	Professionals:
01 Enhance the implementation of the principle of <u>justification</u>	01 Enhance the implementation of the principle of <u>justification</u>	01 Enhance the implementation of the principle of <u>justification</u>	01 Enhance the implementation of the principle of <u>justification</u>	01 Enhance the implementation of the principle of <u>justification</u>
02 Enhance the implementation of the principle of <u>optimization</u> of protection and safety	02 Enhance the implementation of the principle of <u>optimization</u> of protection and safety	02 Enhance the implementation of the principle of <u>optimization</u> of protection and safety	02 Enhance the implementation of the principle of <u>optimization</u> of protection and safety	02 Enhance the implementation of the principle of <u>optimization</u> of protection and safety
03 Strengthen manufacturers' role in contributing to the overall safety regime	03 Strengthen manufacturers' role in contributing to the overall safety regime	03 Strengthen manufacturers' role in contributing to the overall safety regime	03 Strengthen manufacturers' role in contributing to the overall safety regime	03 Strengthen manufacturers' role in contributing to the overall safety regime
04 Strengthen radiology education and training	04 Strengthen radiology education and training	04 Strengthen radiology education and training	04 Strengthen radiology education and training	04 Strengthen radiology education and training
05 Shape and promote a strategic research agenda for radiation protection in medicine	05 Shape and promote a strategic research agenda for radiation protection in medicine	05 Shape and promote a strategic research agenda for radiation protection in medicine	05 Shape and promote a strategic research agenda for radiation protection in medicine	05 Shape and promote a strategic research agenda for radiation protection in medicine
06 Increase availability of improved global information on occupational and occupational	06 Increase availability of improved global information on occupational and occupational	06 Increase availability of improved global information on occupational and occupational	06 Increase availability of improved global information on occupational and occupational	06 Increase availability of improved global information on occupational and occupational
07 Improve prevention of medical radiation incidents and accidents	07 Improve prevention of medical radiation incidents and accidents	07 Improve prevention of medical radiation incidents and accidents	07 Improve prevention of medical radiation incidents and accidents	07 Improve prevention of medical radiation incidents and accidents
08 Strengthen radiation safety culture in health care	08 Strengthen radiation safety culture in health care	08 Strengthen radiation safety culture in health care	08 Strengthen radiation safety culture in health care	08 Strengthen radiation safety culture in health care
09 Foster an improved radiation benefit-risk dialogue	09 Foster an improved radiation benefit-risk dialogue	09 Foster an improved radiation benefit-risk dialogue	09 Foster an improved radiation benefit-risk dialogue	09 Foster an improved radiation benefit-risk dialogue
Seeking collaborative care, holistic protection, patient agency, and individualization of all radiation care matters	Ensuring explicit ethical underpinning of all radiation care approaches and actions	Sensitive, informed, and engaging communication with patients and public through updated means and goals	Human-guided use of AI and analytical means for reliable and purposed solutions (including qualifications with KPIs benchmarked data)	Ensuring and empowering the needed workforce: fostering health needs healthy and expert care-providers with clear roles and responsibilities

International Conference on Radiation Protection in Medicine: X Ray Vision



Et al. Equipment, Standards & Manufacturers

IEC Equipment Standards

- Little recognition/ attention to industry role (except in research/ consultancy)
- IEC: **>50 standards** for Imaging, 40 for RT, most modalities
- Have been essential for global market and for safety

Future of World Trade Organisation

Radiological Equip market Global

- Int trade system and global standards at risk --- could fail.



Context Personal Morality/ Professional Ethics System essential

- Professional guidelines and codes : not enough
 - The Law : not enough
 - Personal Moral Compass though necessary is not sufficient
 - Ethical framework w professional mandate essential.

 - Situations where Law/ Protocols confused/ lack maturity/ inadequate
 - Where what ought to be done can't be done
- Ethics as Lens** and a good work culture will protect against some impacts of deregulation



Conclusions: Ensuring Safety

- CRITIQUE of what we have
 - ICRP, EC, IAEA, IRPA, IEC,
 - WHO, / EC EU/ Patient Safety
 - Laws/Standards/Guidance/Protocol

USE ETHICS AS THE LENS

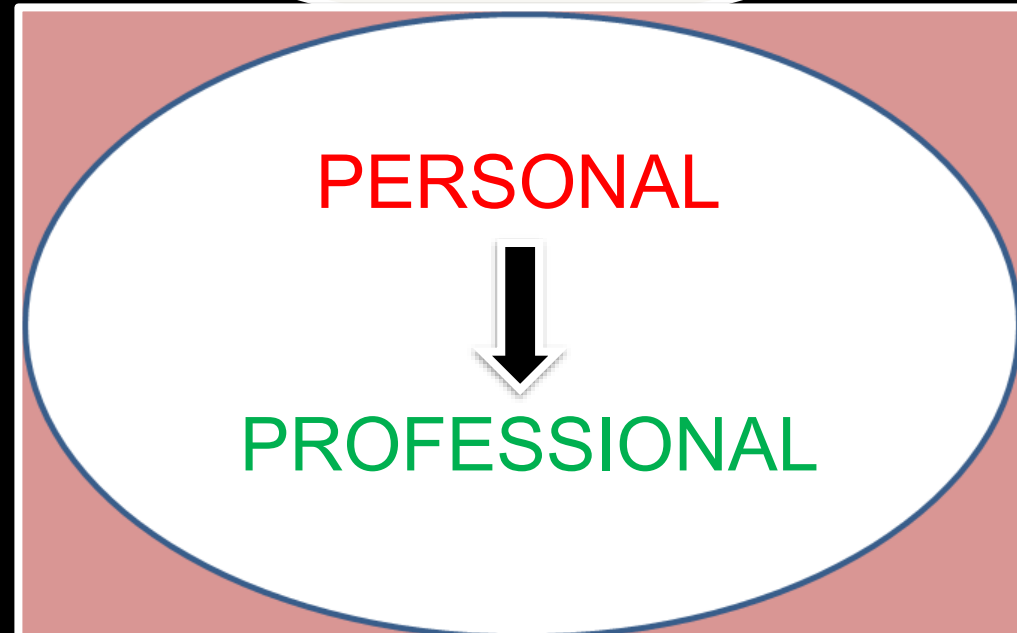
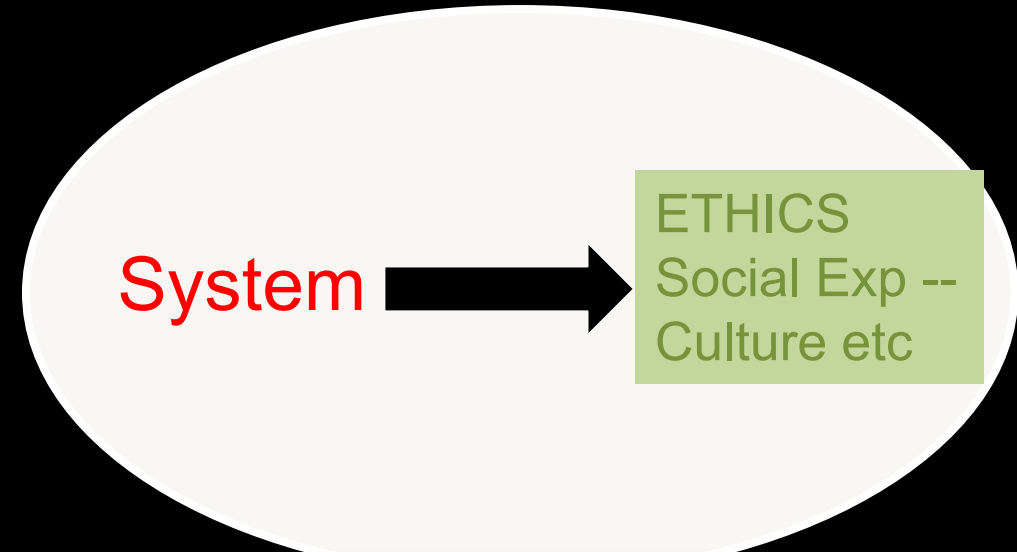
Human Rights,

Social Expectation etc etc

Patient centred care

GOOD CULTURE

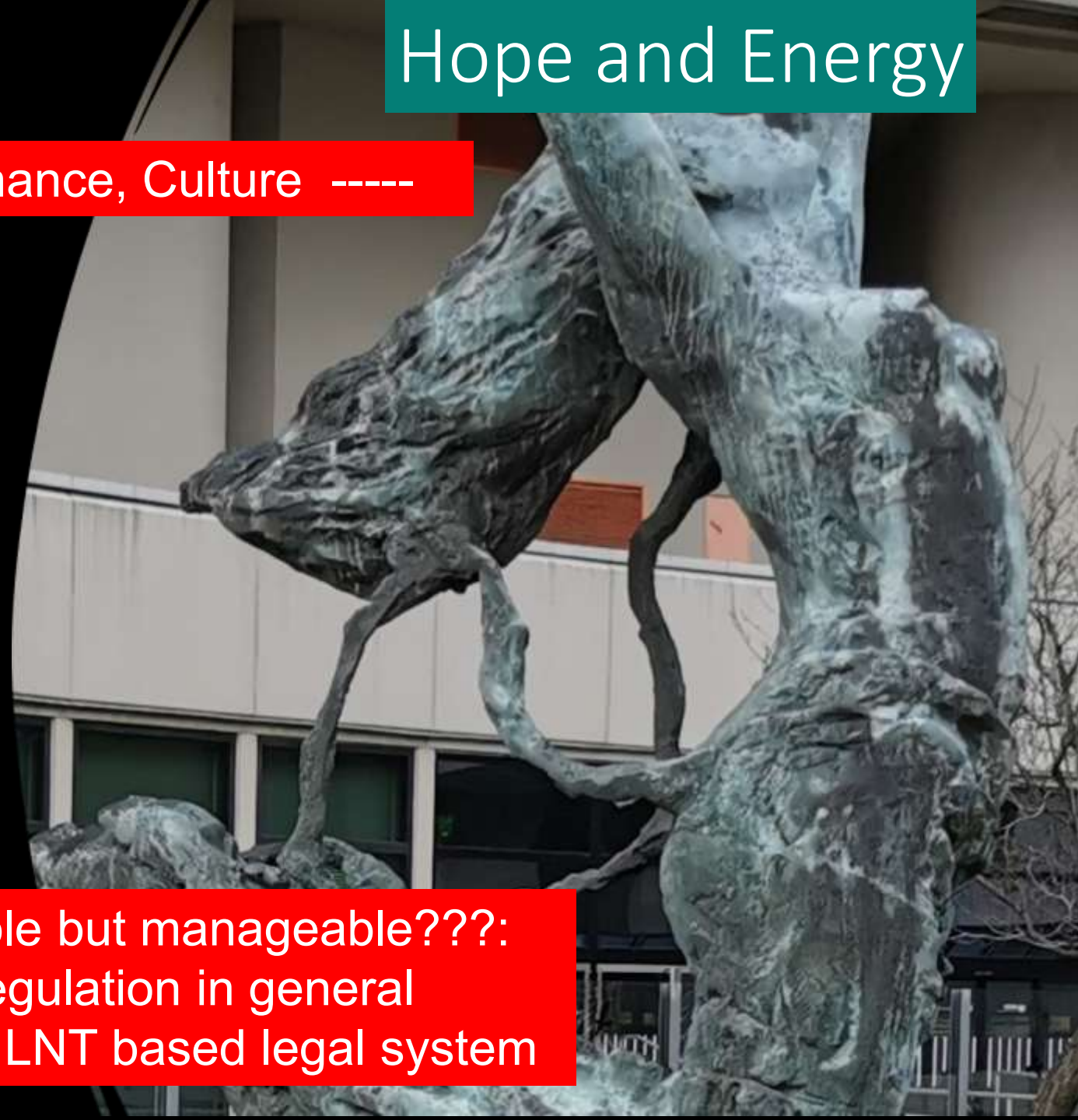
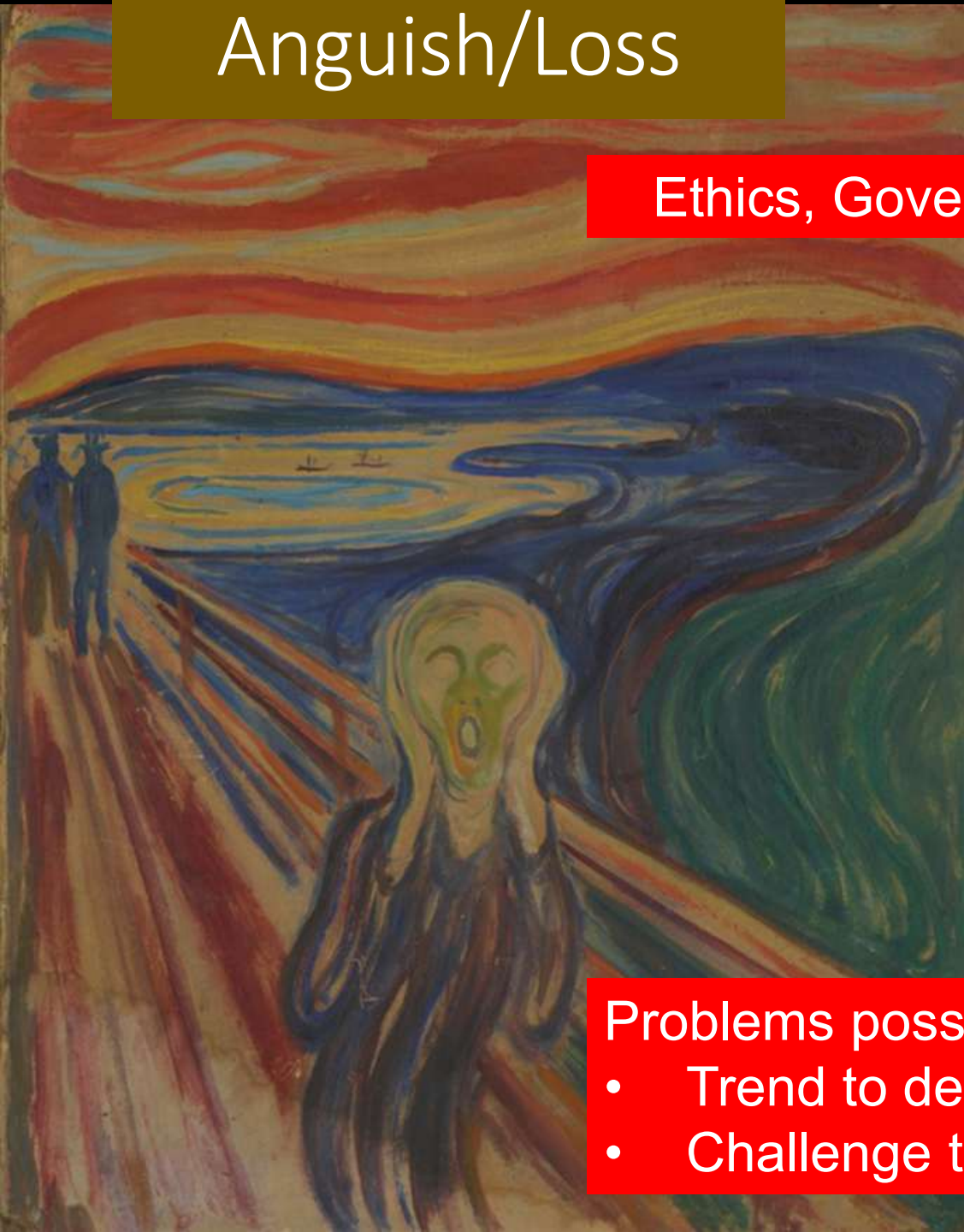
Morally Sound Profession



Anguish/Loss

Hope and Energy

Ethics, Governance, Culture -----



Problems possible but manageable???:

- Trend to deregulation in general
- Challenge to LNT based legal system

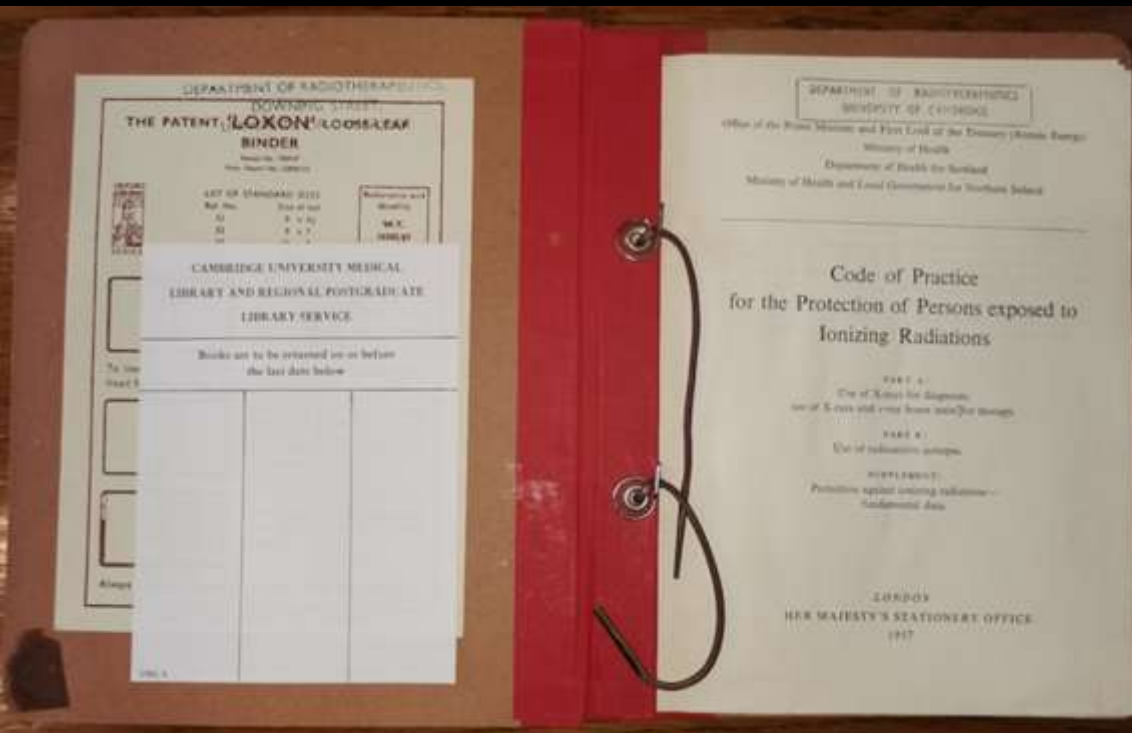


Ethics and a good culture offer much protection against deregulation etc etc.

The Job of the artist is always to deepen the mystery. *Francis Bacon*

Problem 4: An Older Chernobyl and a New Chernobyl

Ordering the Reform of the Nuclear Regulatory Commission. 2025. Executive Order of President Donald J Trump. The White House, May23. www.whitehouse.gov

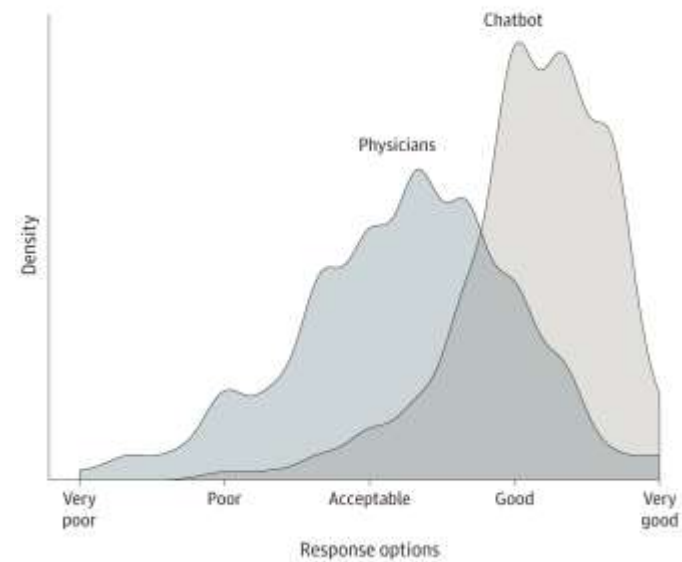


Adopt science-based radiation limits. In particular, the NRC shall reconsider reliance on the linear no-threshold (LNT) model for radiation exposure -----. Those models are flawed, ----- In reconsidering those limits, the NRC shall specifically consider adopting determinate radiation limits, and in doing so shall consult with -----.

Exploring the future of Medical RP: International Perspectives on Law, Governance, and Ethics

Ayers et al. Empathy Ratings for Chatbot and Physician Responses to Patient Questions

A Quality ratings



B Empathy ratings

