

# Ethics of Radiological Protection in Public Communications - Is Telling the Truth the Answer ?

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on the Ethics of  
Radiological Protection  
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## Overview

- Have we been telling the truth about radiation ?
- What is the TRUTH ?
- Is lying the opposite of truth ?
- Truth, beliefs, faith, ethics
- How we determine truth
- Possible answers to public communication





## Did You Know ?

- “You can save 15% in just 15 minutes”
- And the answer is ?
  - “Everybody knows that”
- “Well, did you know - - - - - ?”
- “Radiation is not nearly as dangerous as most people believe it is!”
- “It is actually very difficult to seriously harm someone with radiation”
  - Is this true?
  - If so, “Why aren’ t we telling people that ?”

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## Is the Answer to Tell the Truth ?

- Anecdote of HP at ACS meeting - 1985
- “So Ray, you are going to tell us the answers to risk communication”
  - “I do not pretend to have all the answers, I hope to share a few helpful insights”
- “Ray, the answer is simple,  
“Just tell people the truth”
- “I agree, however, MBTI shows that truth based on logical analysis is only favored by  $\frac{1}{2}$  the population”

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# How We Make Decisions

## ■ Thinking - 50%

- Logical
- Analytical
- Objective
- Laws
- Principles
- Firmness
- Justice
- Criticize
- Analysis
- Impersonal
- Cool
- Truth

## ■ Feeling - 50%

- Personal
- Empathic
- Subjective
- Circumstances
- Values
- Persuasion
- Harmony
- Appreciate
- Sympathy
- Personal
- Caring
- Goodness

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# My Courtroom Experience

- I used to believe I knew the truth until serving as an expert witness and observing courtroom proceedings
- Witnesses - “Swear to tell the truth, the whole truth, and nothing but the truth”
- Feedback from a Federal Judge
  - A trial is carefully orchestrated drama to persuade a judge or jury, truth is incidental

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# Have We Been Telling the Truth About Radiation ?

- Yes or No ?
- Is telling the truth working ?
- Is public opinion of radiation any different today than 50 years ago ?
- If telling the truth is NOT the answer,
  - Should we forego telling the truth ?
  - What is the answer ?

## What is the Truth ?

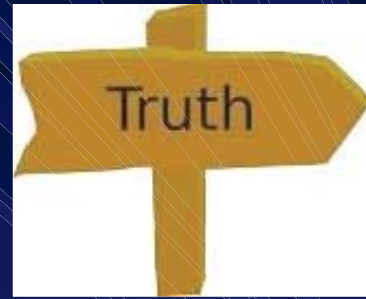
- We agree it is important to tell the truth
- But, “What is the Truth?”
  - In accord with fact or reality
  - Fidelity to an original or to a standard or ideal
- What is the process for deciding how words, symbols, ideas, and beliefs may accepted as truth ?





# Bases for Truth

- **Correspondence theory**
  - Relation to actuality
- **Coherence theory**
  - Fit of elements within a whole system
- **Constructivist theory**
  - Truth from social processes, perceptions
- **Consensus theory**
  - Truth is what we agree upon
  - Basis of measurements and calibration



# More Bases for Truth

- **Pluralist theories**
  - Having particular properties or coherence
- **Truth in logic**
  - Determined by patterns in reasoning
  - Scientific truth (often favored by HPs)
- **Truth in mathematics**
  - Provable within an axiomatic system
- **Semantic theory of truth**
  - “This sentence is true”
- **Objective and subjective truth**





# Truth and Ethics

- **Ethics** - Moral principles that govern a person's or group's behavior.
- **Rules of conduct** recognized in respect to a particular class of human actions or a particular group, culture
- **Synonyms:** moral code, morals, morality, values, rights and wrongs, principles, ideals, standards (of behavior), value system, virtues, dictates of conscience

## Ethics and Public Communication

- **Are we ethical in our communications ?**
- **Is there a right and wrong way to tell people about radiation risks ?**
- **What is morally justified ?**
  - Do we have moral principles to follow ?
- **Is “telling the truth,” the answer ?**
- **Should we, “Just present the facts” ?**
- **If so, “What are the ‘true’ facts” ?**
- **How do we know what is true ?**



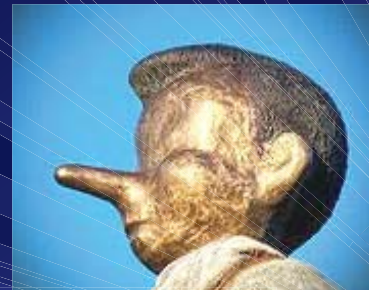
# Ethics and Public Communication

- Can we justify simplifying technical information to enhance understanding
  - Do we have to be technically accurate ?
- Which is more important ?
  - Technical accuracy ?
  - Compassion and understanding ?
- What approach can we defend ?
- What is professionally (ethically) acceptable ?



## Lying and Ethics

- No circumstances under which one can ethically lie – no matter the consequences
- Scriptures – “Thou shall not bear false witness”
- What is lying ?
- Are we bound ethically – not to lie ?
- What are consequences of lying ?





# False, Falsify, or Lie

- Is not telling the truth, the same as lying ?
- True or false on an exam
- Omission or commission
- Is telling a half – truth, lying ?
- Falsification
  - Great concern for RAM licensees



## Types of Lying

- Bare or bold faced lie
  - Obviously not true
- Big lie
  - Attempts to trick
- Bluffing
  - Act of deception, in cards, sports
- Baloney
  - To convey an impression
- Butler
  - I have a call on another line





# Types of Lying



- **Contextual lie**
  - State part of the truth, out of context
- **Economical with the truth**
  - Speaking carefully to avoid something
- **Emergency lie**
  - Strategic lie to minimize harm
- **Exaggeration**
  - Making something more meaningful than reality

# Types of Lying

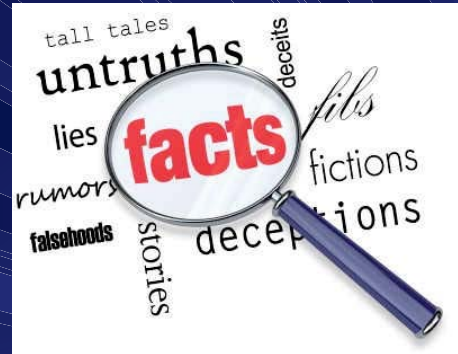
- **Fabrication**
  - Statement made without verification
- **Fib**
  - No malicious intent
- **Half-truth**
  - Deceptive statement – partly true
- **Haystack answer**
  - Truth hidden in volume of false information





# Types of Lying

- **Honest lie**
  - Not knowing information is a lie
- **Jocose lie**
  - A lie meant in jest
- **Lie – to - children**
  - The stork brought you
- **Lying by omission**
  - Leaving something out to foster a misconception



# Types of Lying

- **Lying in trade**
  - Advertising untrue facts for marketing
- **Minimization**
  - Minimizing the facts to avoid something
- **Misleading and dissembling**
  - Statement to get someone to believe
- **Noble lie**
  - Statement made for the good of society



# Types of Lying

- **Perjury**
  - False statements made under oath
- **Polite lie**
  - I have another commitment at that time
- **View from nowhere**
  - Journalism showing both parties equal
- **Weasel word**
  - Ambiguity for deniability
- **White lie**
  - Harmless lie for the greater good



Everybody Lies...

## Importance of Truth and Faith

- **We have to believe (have faith)**  
**in something**
- **We need realistic expectations to live**
- **Truth is needed for survival,**
  - For coping with the world
- **Faith leads to an active life aligned with**  
**ideals and beliefs of what is true**



# Truth, Facts, Meaning

- **"A fact is a synthesis of impressions"**
  - Love and Mr. Lewisham,
  - H. G. Wells, 1900
- **How do we assess meaning and truth ?**
- **All information is first processed subconsciously by association with stored memories, experience, and beliefs (truths)**



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## Two Systems for Processing Data

1. **Conscious** - Reason and rational analysis of facts
  - Favored by technical specialists
  - May lead to intelligent decisions, but, **very slow** and takes effort
  - For radiation safety, we often do not have all the facts, time to gather facts, or knowledge to understand them
2. **Subconscious** - Emotion, instinct, and gut reactions , **very fast**,
  - Does not need all the facts
  - Origin of most decisions, especially for safety

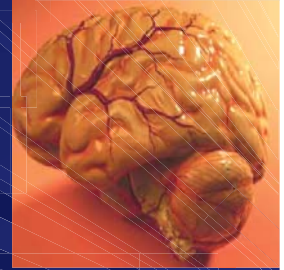
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# Role of Our Conscious Mind < 1%

- **Slow**, deliberate, rational, thinks, reasons, and makes decisions and choices based on sensory input
- **Source** of knowing and awareness
- **Serves** as the captain of our ship, the giver of orders
- **Processes** information to make decisions
- **Can only deal** with one thing at a time
  - **Example**



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# Subconscious Mind > 99.999%

- **The seat** of our emotions / creativity.
- **Takes orders** from the conscious mind without judgments
- **A Very Fast**, super computer
- **Functions 24 / 7** operating the machine we call our body
  - **Regulates** our heart, our breathing, digestion of food, healing of cells, etc
- **Handles thousands** of inputs simultaneously for our health and protection
- **Programmed** to fear / react instantly to danger



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# Fears of Radiation are Involuntary

- Instinctive fears of heights, snakes, spiders, closed spaces, submersion, public speaking,
- Repeated message “Deadly Radiation”
  - Transferred to subconscious mind for protection – basis of meaning
  - Radiation is now an instinctive source of fear
  - Fear of radiation – not a conscious choice
- Subconscious reacts automatically to radiation without consulting the conscious mind
- Decision to “RUN” is now automatic



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## How We Process Data

- We process, sort, compare, categorize, and analyze information, in relation to -
  - Immediate circumstances - radiation
  - Experiences – what have we heard ?
  - Life factors, such as health, wealth, traditions, and lifestyles
  - Loss aversion – need to be safe
- With all these inputs we come up with instant judgments
  - Quick judgments are crucial to survival
- Based on limited information
  - May not be best in the long term
  - Is running away the best answer ?

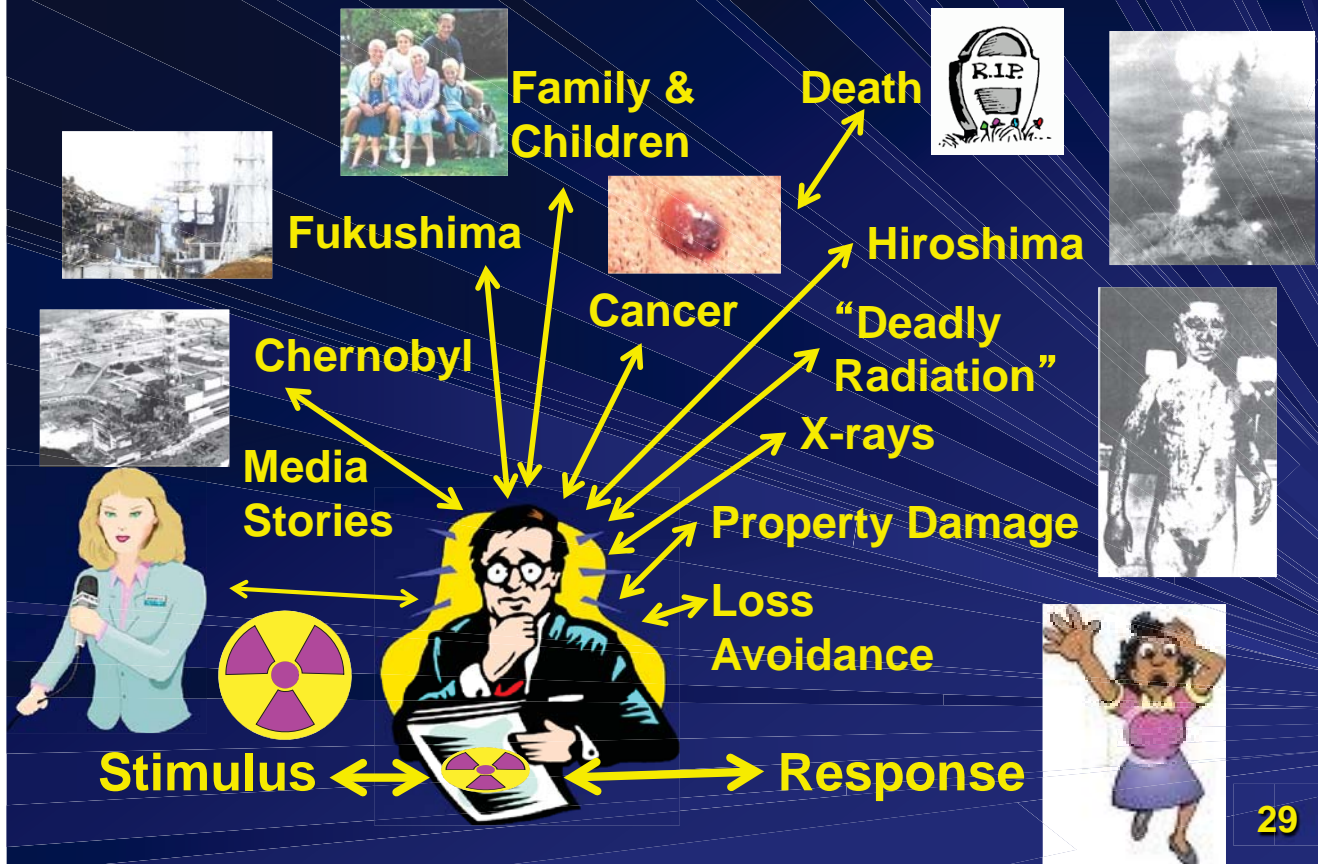


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# Instant Subconscious Processing



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## Role of the Subconscious Mind

- Influences our conscious view of the world in fundamental ways
  - How we view ourselves and others
  - The meanings (truth) we attach to everyday events in our lives
  - Our ability to make quick judgments
  - The actions we take in response to instinctive experience of the world



# Ethical Answers to Public Communication?

- Help people find the TRUTH
- Let people know its OK to be afraid
- Show that you care
- Hear and reflect feelings
- Be a resource to help people to find their own answers
- Provide guidance on steps from Cause to Effect

## Help People Find Answers

- Show – and – tell
- Demonstration of radioactive antiques
- Compare antique readings with sources of concern
- Let concerned person do measurements
  - Compare readings from antiques with readings for radiation source of concern
- Explain instrument readings



# Establish Rapport

- Do not make people wrong for their fears
  - . It's OK to be afraid.
- Use “Active Listening” to show that you care by hearing and responding to feelings
  - “I don't want anything to do with radiation!”
  - Active Listening Response,  
“Radiation is scary isn't it”
- Invite workers to help answer the question –
  - Is this source of radiation safe ?
  - Show them steps from Cause to Effect
  - Workers have buy-in to their own answers

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## Steps from “Cause to Effect”

1. What are properties of radiation
  - $\alpha$ ,  $\beta$ ,  $\gamma$ , x-ray ? - Form and quantity ?
2. Where is it located - Inverse square law ?
3. How is it contained - Shielding ?
4. How will it move in the environment ?
5. What are the exposure conditions – mR / hr ?
6. What is the duration of the exposure – hr ?
7. How much energy is deposited in our body - mrem ?
8. What are the health risks at  
1 death / 1,000 person - rem



# What have we Learned Today ?

- Is telling the truth – the answer ?
- Have we been telling the truth about radiation ?
- What is the TRUTH ?
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- Truth, beliefs, faith, ethics,
- How we process data
- Possible answers to public communication



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# Questions ?



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