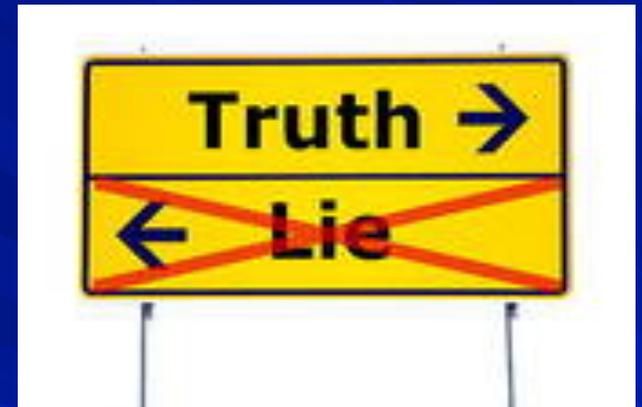


Ethics of Radiological Protection in Public Communications - Is Telling the Truth the Answer ?

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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 ?”

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”

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

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

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

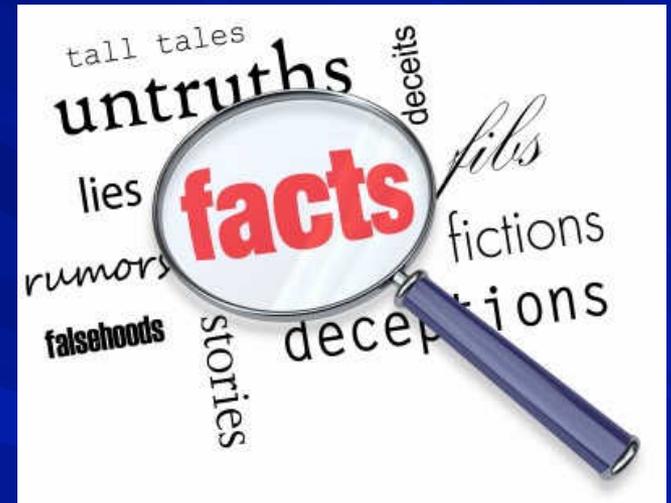
■ Haystack answer

- 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)**



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

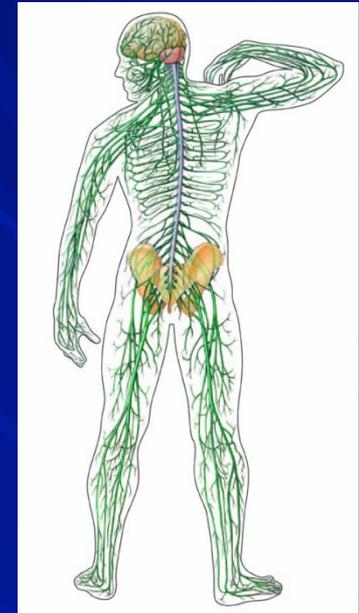
Role of Our Conscious Mind < 1%

- **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**



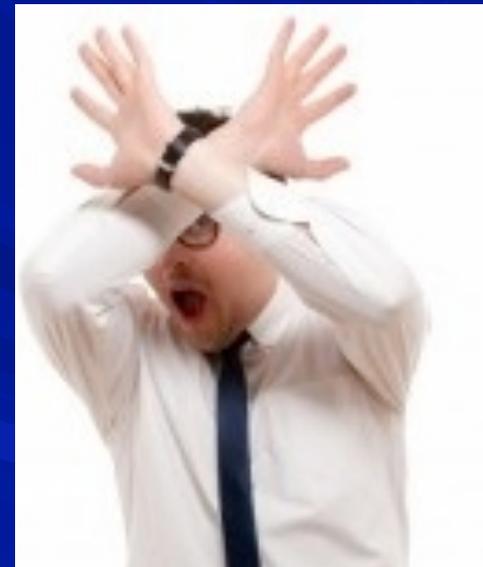
Subconscious Mind > 99.999%

- 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



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

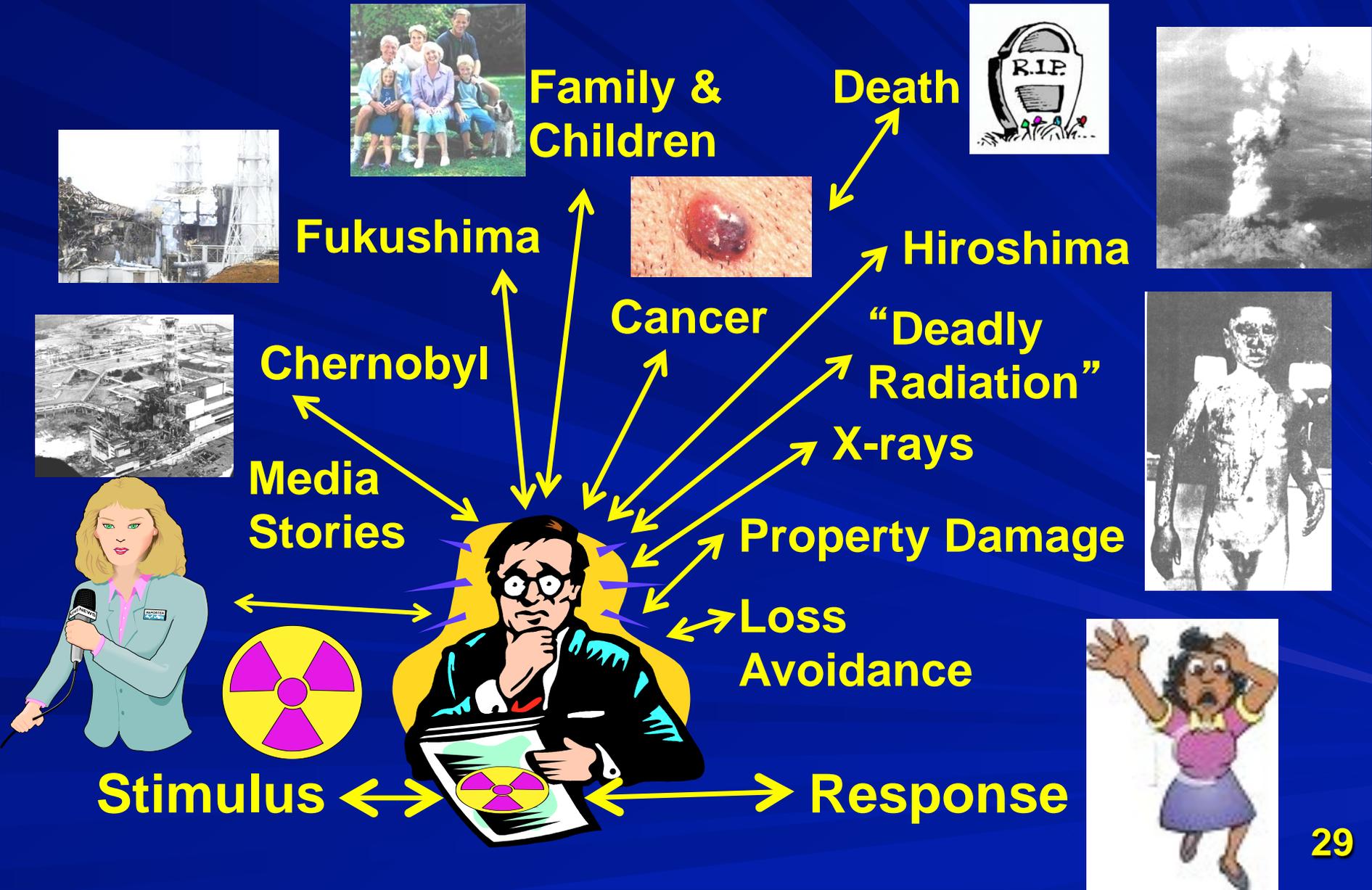


How We Process Data

- 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 ?



Instant Subconscious Processing



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

Steps from “Cause to Effect”

1. What are properties of radiation
 - α , β , γ , 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 ?
- Is lying the opposite of truth ?
- Truth, beliefs, faith, ethics,
- How we process data
- Possible answers to public communication



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Questions ?



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