



Radiation Safety Counseling News

How We are Prone to Errors in Decisions for Radiation Safety - Part II

Dear Reader,

Continuing from past months, I am exploring concepts from a book by Daniel Kahneman and these concepts can help us understand why we may make errors when making decisions for radiation safety.

As always, your questions or feedback are welcomed. Feel free to contact us through email, our blog, or our Facebook page.

Regards,

[Ray Johnson](#)

ray@radiationcounseling.org

Radiation Safety Counseling Services



Ray Johnson

Quick Links

[Website](#)

[Forum/Blog](#)

[Facebook](#)

Join Our Mailing List!

We are on

facebook

We have created a Facebook page for the Radiation Safety Counseling Institute. This is another resource for the sharing of radiation safety related information and questions.

Click below to visit our page!

[Find us on Facebook](#)

Got Questions?

If you have a question about radiation safety that you would like to share, please post your question on our Forum (blog) or our Facebook page. Each week our experts will select a question and post an answer that will also be included in our monthly newsletter.

To post a question go to:

[Radiation Safety Forum](#)

or

[RSCI on Facebook](#)

How We are Prone to Errors in Decisions for Radiation Safety - Part II

Ways We are Prone to Errors

This month we will continue to look at ways we are prone to errors in decisions for radiation safety. We previously looked at the "halo effect" where we are tempted to correlate impressions or attributes with something we like or dislike, when there may be no correlation in facts. Thus people often draw negative conclusions about radiation, with no actual data to support those conclusions, simply because they have always heard negative associations with radiation. This is an example of what psychologists call decorrelate error.[1] It has to do with how we evaluate information relative to what we have heard before. The police know about this phenomenon and therefore they interview witnesses independently to minimize influence between witnesses. This phenomenon also plays out in open meetings where more weight is given to the opinions of those who speak early and assertively.

What You See is All There Is

Since we subconsciously evaluate all incoming information by association with stored memories or impressions, our conclusions are based only on activated ideas. Our subconscious will construct the best possible story from currently activated ideas without seeking out additional information. The success of this process is measured by the coherence of the story, not on the quality, quantity, or relevance of any data. When information is scarce, which is usually the case for radiation, our subconscious will draw upon associations from activated memories, usually leading to a fear response. Although we might change our minds when presented with more data, we are inherently biased by first impressions. Also the evaluation of data is a function of our conscious mind which is inclined to accept the intuitive

beliefs of the subconscious mind and seek out or accept information that supports those beliefs. Actually with less information it is easier to construct a coherent story with confidence. Unfortunately, overconfidence may lead to failure to realize that critical information is missing. For example, a crucial piece of information often missing for decisions on radiation safety is the radiation dose received or expected.

Answering Questions Based on Impressions

Our subconscious is constantly monitoring what goes on around us and inside our minds and continuously generates assessments without any special effort. These assessments are primarily to judge threat level. Is everything normal? Should we be responding to something that could affect our survival? Even infants can discriminate friend or foe at a glance (my three-month old granddaughter does not like my beard and glasses). A glance at a stranger's face is enough to judge dominance and trustworthiness (threat level) simply on the basis of features and expression. For instance, while watching a political ad a friend announced that he did not trust the candidate's smile and would not vote for him. This initial impression will then color all future evaluations of this candidate's track record or qualifications. Although facial features cannot predict a person's performance in office, we are predisposed to select the candidate that seems to portray the attributes that we value.

Reliance on Sets and Prototypes

Our subconscious mind can quickly and effortlessly judge averages, such as the average length of a set of lines. However, our subconscious does not do well when asked for the sum of the lengths of a set of lines. To answer this question we have to engage the conscious mind to estimate the average length, estimate the number of lines, and then multiply by the average length. When asked to assess something that requires math, we are inclined to substitute a prototype. For example, the fearful reactions to radiation from the Fukushima Daiichi reactors probably had little to do with the number of people exposed to radiation or how much, but rather the reactions were more likely the result of a prototype, namely the horrible image of a single person exposed to radiation from Hiroshima or Nagasaki.

Matching by Intensity

While the subconscious is not good with numbers and math, it is very good at judging intensity which allows associations of colors, sounds, actions, trauma, and threats. We can effortlessly judge each of these qualities by intensity even though they represent completely different scales. For example, strong colors (deep red) and loud sounds (gun fire) are associated with threats and trauma. If asked what color corresponds to radiation, many may say bright red.

Our Subconscious Shotgun

Because our subconscious automatically evaluates everything, sometimes in the process of answering one question, another question is evoked which may be not only irrelevant, but detrimental to the main question. Our evaluations are typically not well aimed but scattered like shotgun pellets. Conflicts with irrelevant answers can disrupt our performance on key questions. Antinuclear activists exercise this phenomenon very well when they throw lots of irrelevant and false information at a technical person, who then feels led to respond to each piece of false data. The goal is to get us so tied up in the trivia that we may miss the key questions and we lose sight of the real issues. Of course they also know how easy it can be to disrupt a technical person by throwing not only a plethora of technically wrong information at us, but with emotional appeal.

Answering an Easier Question

We are rarely stumped. We have a remarkable ability to intuitively judge and arrive at

Communication Insights

Each week, we post another installment of guidance to improve communication with others. To stay informed, you can go to our [blog](#) and click on Follow: RSS, then choose to "Subscribe to this Feed".

You can also go to our [Facebook](#) page and choose "Like" to have our status updates displayed on your Facebook wall.

We hope you find this information helpful and welcome your comments, questions, or other feedback.

opinions and feelings about virtually everything. We instinctively like or dislike and trust or distrust people before we know much about them. Thus we have answers to questions that we do not understand, relying on evidence that we can neither explain nor defend. When confronted with a difficult question, when our subconscious is not able to come up with a quick answer, we may find an easier question to answer and go with that. For example, people commonly draw conclusions about probabilities of radiation effects (cancer) without understanding probabilities or radiation. Rather than analyzing the math, people will substitute the question, "How do I feel about dying of cancer." The answer to this question is easy for the subconscious mind without invoking the problem solving functions of the conscious mind. If asked, "How much money should we spend to avoid radiation?" by matching the intensity of our fears with dollars we can conclude that a large amount of money is warranted. No math or complicated analysis is needed for this conclusion

Why We are Prone to Errors

Each of the topics briefly described above can lead us to make decisions for radiation safety which may not be supported by the facts. Next month we will continue this series on how we are prone to errors on decisions for radiation safety.

[1] Daniel Kahneman, "Thinking, Fast and Slow." Farrar, Straus, and Giroux, New York, 2011.

[Forward email](#)



Try it FREE today.

This email was sent to reader@virtupro.biz by greg@radiationcounseling.org | [Update Profile/Email Address](#) | Instant removal with [SafeUnsubscribe™](#) | [Privacy Policy](#).

Radiation Safety Counseling Institute | c/o VirtuPRO Business Solutions | PO Box 6514 | Ocean Isle Beach | NC | 28469