



Radiation Safety Counseling News

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

Dear Reader,

Continuing from last month, I am exploring concepts from the book by Daniel Kahneman. 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,

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Radiation Safety Counseling Services



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

This month we will continue to draw upon observations from a recent book by Daniel Kahneman (Nobel Prize in economics) "**Thinking, Fast and Slow**." Farrar, Straus, and Giroux, New York, 2011. Last month we looked at how we generally accept words which are familiar from repeated use in the media, such as "deadly radiation." Most people are not inclined to evaluate those words by conscious effort because they accept the "illusion of truth" conveyed subconsciously. Repeated use of such words leads to familiarity and cognitive ease and can contribute to errors in decisions for radiation safety.

What is Normal?

Our subconscious mind is constantly scanning our environment to update our model of what represents normalcy. Our model is constructed from associations and ideas of circumstances, events, actions and outcomes, images, and impressions stored in memory. This model is strengthened by developing patterns over time which become the basis for interpreting the present and predicting the future. We maintain norms for many categories of our lives which serve as references for detecting anomalies. We are especially sensitive to surprises which indicate something outside of normal. While surprises are the basis for humorous jokes, they can also be indicators of danger.

Seeing Causes and Connections

As our subconscious mind attempts to derive meaning from associations in memory, we may construct a seemingly coherent story from unrelated inputs. Finding causal connections is how we understand stories. As we mature we develop impressions of causality which do not depend on reasoning about patterns of causation. Subconscious connections of cause and effect may be readily accepted by the lazy conscious mind which wants to conserve energy

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.

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by minimizing analytical efforts. Our minds are ever on the alert to identify causes and agents of observed or anticipated events and assign them personality traits and intentions. This may also help explain why people are so willing to accept the words "deadly radiation." In our coherent story of the world, radiation is the evil bully.

Jumping to Conclusions

The quick associations within our subconscious mind may lead us to jump to conclusions that go beyond the actual circumstances. And yet to assure safety, we are often forced to make instant decisions with limited information, no time to gather more data, and limited understanding of the data available. Such quick decisions are prone to intuitive errors. In our haste for self preservation we may totally miss ambiguities. We tend to interpret events for coherency with stored impressions in the subconscious mind. Sorting our ambiguities and uncertainties is the realm of the slow, deliberate, reasoning, conscious mind which would rather accept the quick conclusions of the subconscious mind. The sudden subconscious awareness of a snake in the grass is probably not the time to think long and hard about the possible danger before automatically jumping back.

We are Primed to Believe

We cannot un-believe something before we have made an attempt to believe it. Our subconscious will automatically attempt to believe by constructing the best possible interpretation of circumstances with stored impressions. We naturally try to make sense out of nonsense to create a coherent picture. Unbelieving is the work of the conscious mind which is prone to errors when overloaded. When the conscious mind is tired or otherwise engaged (such as in a fight or flight response mode), we are prone to believe falsehoods. Priming may explain why beliefs in radiation myths are so common (note: a myth is something commonly believed which is not technically true). When stimulated to fear by radiation, we are prone to accept the myths commonly perpetuated by the media without any conscious analysis of the circumstances.

Confirmation Bias

Whatever our subconscious believes we will tend to confirm with new information. We screen what we see and hear to ensure our beliefs are "proven" correct. Once we have formed a view, we embrace information that supports that view. We also seek out other people who share common beliefs for further confirmation. Groups tend to polarize around common views and become more convinced that their beliefs are right. What we believe is deeply influenced by the beliefs of the people around us and of the culture in which we live. We also remain social animals who care about what other people think. And if we aren't sure whether we should worry about a particular risk, whether other people are worried makes a huge difference.

While confirming our view we ignore, reject, or harshly scrutinize information that casts doubt on it. Unfortunately, seeking to confirm our beliefs comes naturally, while it feels strange and counterintuitive to look for evidence that contradicts our beliefs. Worse still, if we happen to stumble across evidence that runs contrary to our views, we have a strong tendency to belittle or ignore it. Isn't this happening repeatedly as we evaluate candidates for President?

The Halo Effect

This effect describes the way we commonly make associations regarding what we like or dislike about people or circumstances without any actual data. For example, suppose we admire a skillful speaker and we believe a leader should be a skillful speaker. Thus we conclude that a skillful speaker will be a good leader without any other information to support this conclusion. Here is how this might apply to radiation. For many people the word

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"radiation" is connected subconsciously to associated memories of terrible consequences of atomic bombs. Thus, the word radiation is automatically associated with bad expectations today without any specific information on the current circumstances.

As specialists in radiation safety we know that before we can judge the risk of radiation we have to know what kind, the amount, the exposure conditions, and the dose. However, this type of evaluation requires deliberate rational analysis by the conscious mind which takes time and effort. In the meantime, the subconscious mind of most people will have processed associations with the word radiation instantly and already made decisions for safety.

Why We are Prone to Errors in Decisions for Radiation Safety
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 safety.

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