

# Comparing risk for communication: a rejoinder

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In risk communication activities, risk comparison is often helpful but it could be challenging. We wish to convey complex concepts of radiation to laymen but often this is fraught with ambiguity, confusion and may be even contradictory. It is essential to know our audience and the situation. As the media, especially the social media, is playing an important role in influencing public opinion, it is imperative for radiation protection specialists to educate and work with them. We will review some principles of comparing risk, such as using analogies, comparing to standards, comparing to other estimates of the same risk, do not compare risk with different levels of outrage. In this presentation we will give some examples of the use and abuse of risk comparison, and explain the principles behind these. The examples will cover, amongst others, Fukushima nuclear reactor accident and rare earth refineries.

## Principles of risk comparison (Cavello 2011)

- Using analogies
- Comparing to other estimates of the same risk
- Do not compare risk with different levels of outrage
- Comparisons of the same risk at two different times
- Comparisons with a regulatory standard
- Comparisons of the risk of doing something vs. not doing something
- Comparisons of alternative solutions to the same problem
- Comparisons with the same risk as experienced in other places

## Inappropriate comparison of risk

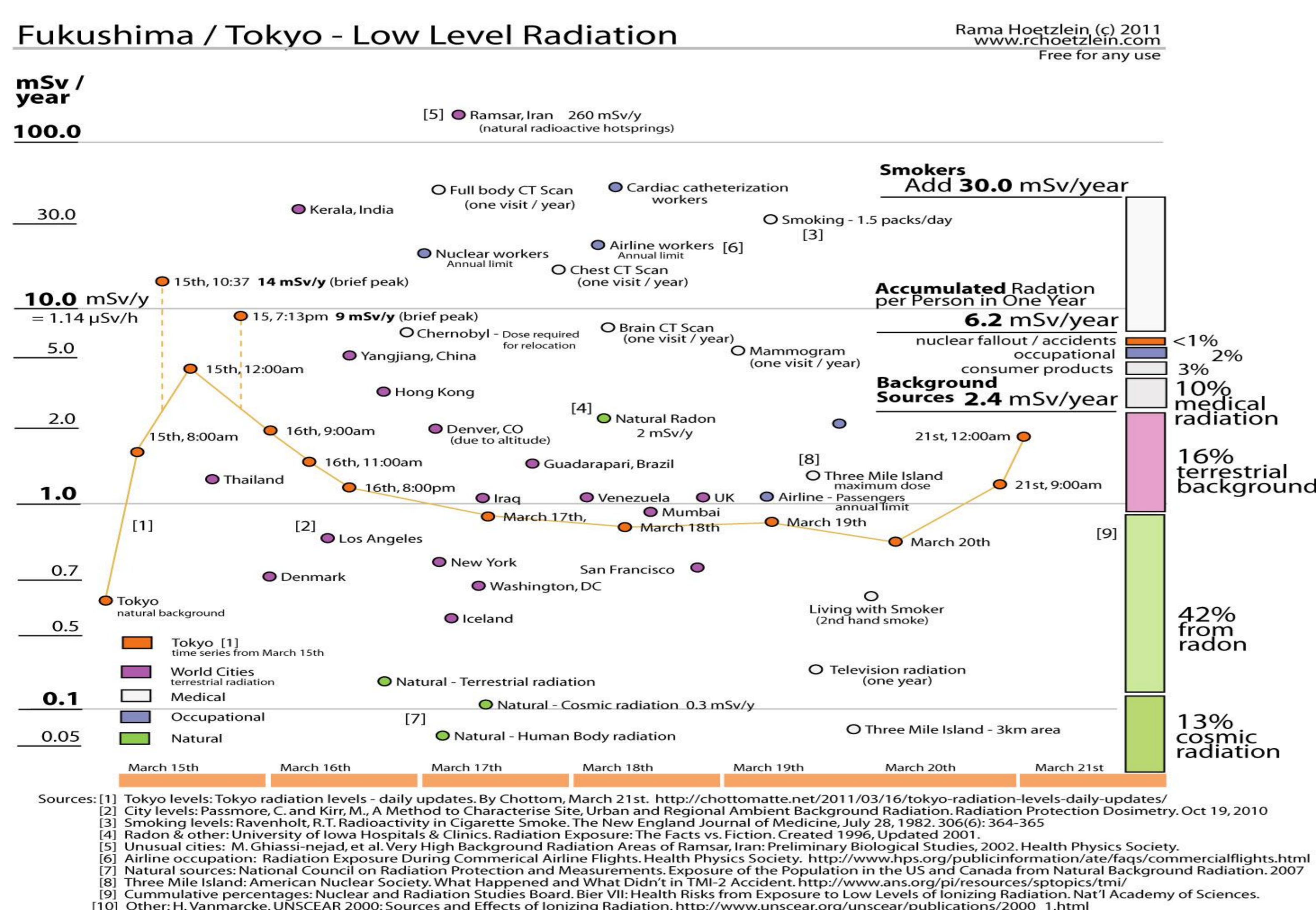


“Watching television for 4 hr a day can cause 10 times more radiation than what you will get from a rare earth refinery plant”

*Is there radiation emitted from the TV?*

*An outdated comparison still circulating today*

## Fukushima: risk comparison



## Going banana!



“Radioactivity released by a nuclear reactor in a day is equiv. to that from 12 bananas”

*This appears condescending or trying to distract the audience from the risk in question.*

*A more effective comparison would be to compare the amount of radiation to a regulatory standard, or to a familiar source of radiation (such as a chest x-ray).*

## Put risks in perspectives

A risk of *one in a million* ( $10^{-6}$ ) is equiv. to  
30 sec in a year, 1 cm in 100 m, 1 drop in 60 litres

## Some advice

- Know your audience and know your situation
- Public are interested in: (1) associated health effects, (2) *what to do now* (They are not interested in actual dose values)
- Treat all questions as insightful (Opportunity to explain)
- Educate and work with the media

### References

- Covello VT. Risk Communication, Radiation, and Radiological Emergencies. Health Physics 2011, 101, 511-530.
- Jorgensen T.J, Moscovitch M. Communicating radiation risks to the public. Radiat Prot Dosimetry 2011, 145, 339-340