

# Communicating Benefit to Risk Ratio From Radiology Exams to the Patient and Provider

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# Communicating Benefit to Risk Ratio From Radiology Exams to the Patient and Provider



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**Sciences**

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**RITENOUR'S FIVE RULES FOR:**

**COMMUNICATING  
BENEFIT TO RISK RATIO  
TO PATIENTS AND PROVIDERS**

Rule # 1

# EMPLOY E.I. SKILLS

## *Emotional Intelligence*

### *Daniel Goleman's five elements:*

- Self-awareness.
- Self-regulation.
- Motivation.
- Empathy.
- Social skills.



# Empathy

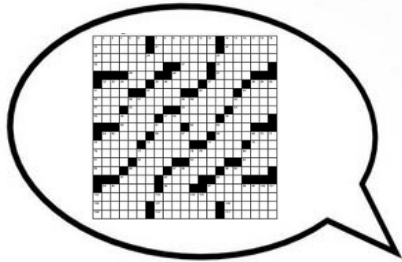


- ✓ Understand\* the questioner's
  - ✓ Background knowledge
  - ✓ Fears
  - ✓ Biases
  - ✓ Desired outcome

\* You don't have to ("feel" or "share") but you should understand.  
(sympathy) (empathy)

Rule # 1

# EMPLOY E.I. SKILLS



~~Right~~

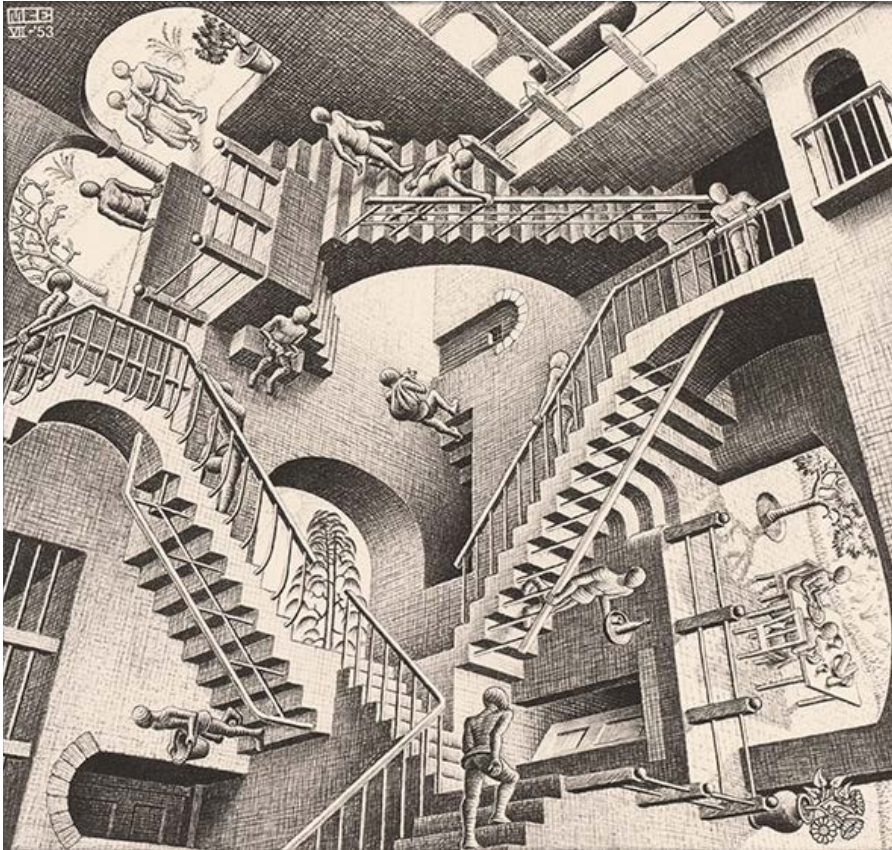




# A Questioner is not a “Vacant Lot”



# A Questioner arrives with a “Knowledge Structure”



You may find their  
“Knowledge Structure”  
to be bizarre and  
convoluted



# A Questioner arrives with a “Knowledge Structure”



You may find their  
“Knowledge Structure”  
to be sensible\* and  
in agreement with  
your own

\* Well, Duuh ... it's sensible if it's in agreement with your's

You have to add to the existing structure in a way that is compatible



Rule # 1

## EMPLOY E.I. SKILLS

There are Two Analogies here

**Patient or Provider has a:**

- 1. Puzzle they want to solve**
- 2. Knowledge Structure already in place**

**Empathy** *will help in both situations*

Rule # 1

## EMPLOY E.I. SKILLS

### Terminology

#### Communicating with the Patient:

**Not:** Subject, Case, Individual(s)

**Use:** Person, Patient, Other People

#### Communicating with the Provider:

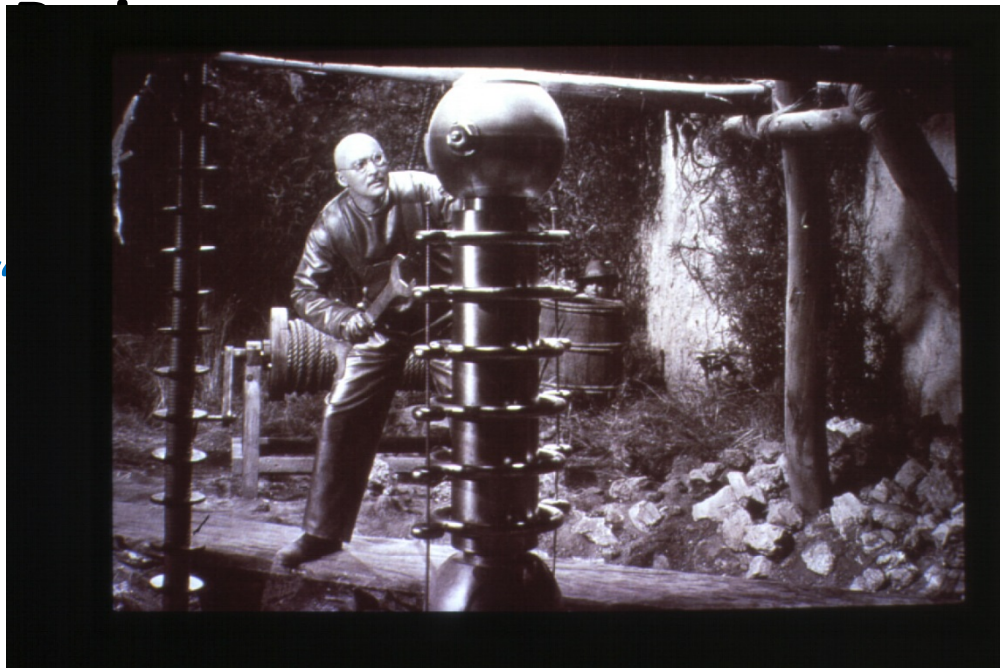
**Maybe Not:** Subjects, Cases, Individuals

**Should Use:** Your patient, Patients, Others,  
Refer to them by name

Rule # 2

# DON'T MISREPRESENT YOURSELF

Don't offer too much detail on medical physics



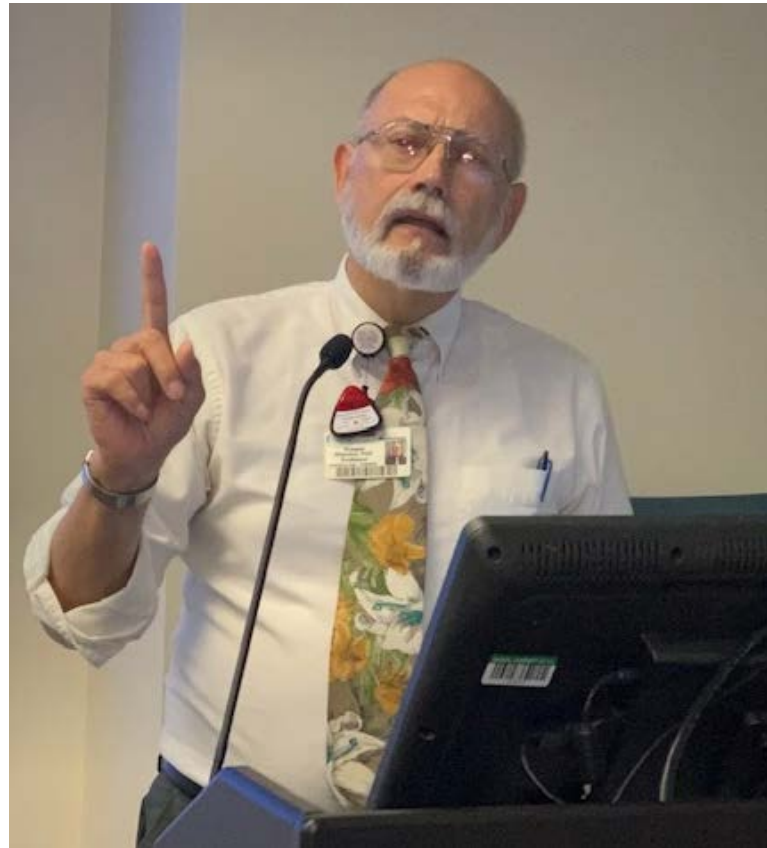
losure ?”



Rule #3

# **HAVE CONCISE INFORMATION AT HAND**

“I know so much  
that I don’t know  
where to begin”



Rule #3

# **HAVE CONCISE INFORMATION AT HAND**

- ✓ **Keep up to date**
  - ✓ Popular Press, CNN, Web
  - ✓ SAMS, Reading, Listening
- ✓ Help them with Quantities and Units ?
- ✓ Separate Dx into:
  - ✓ Low: Dental, chest, extremities
  - ✓ Medium: Fluoro, CT
  - ✓ High: Interventional
- ✓ Compare to other risks in life
- ✓ Compare to other risks in medicine
- ✓ Compare to background dose
  - ✓ Be clear: background “noise”

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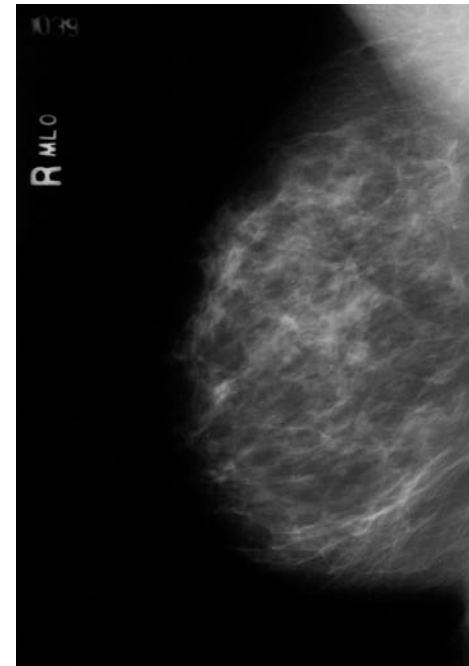
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Dental:  $E \ll 0.1 \text{ mSv}$





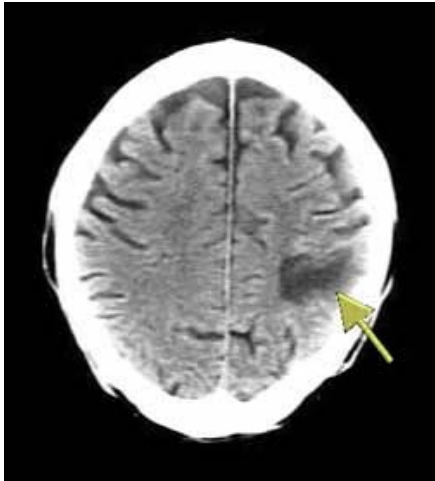
# Mammography: $E < 0.1 \text{ mSv}$



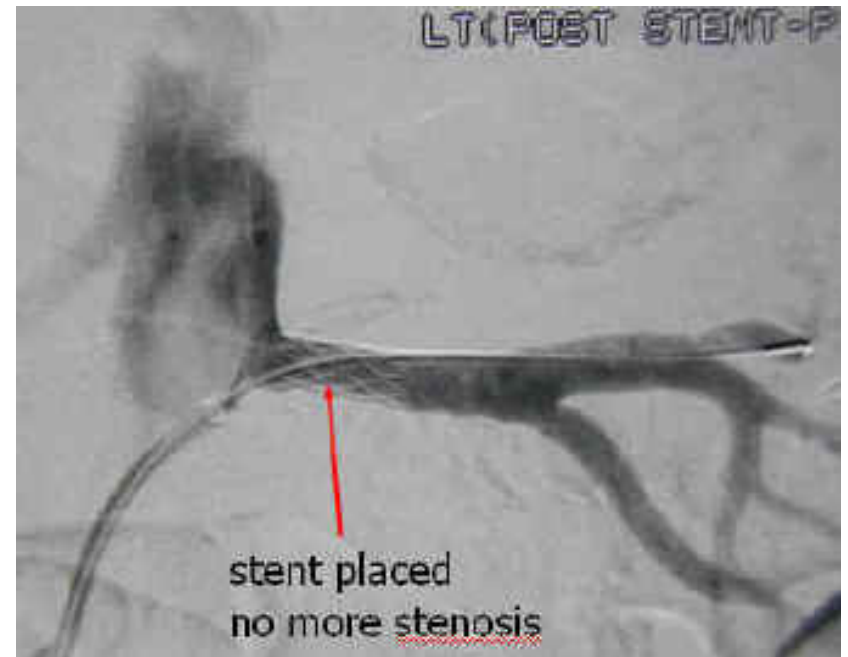
Abd / Pel X-ray :  $E \sim 0.7 \text{ mSv}$



CT:  $E \sim 7 - 15 \text{ mSv}$



# Interventional Radiology: $E \sim 9 \text{ mSv}$



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# **Risks That Increase Chances of Death by 1 in a million**

| <b><u>Risk</u></b>                        | <b><u>Cause of Death</u></b>          |
|---|---------------------------------------|
| <b>1 chest film</b>                       | <b>Cancer</b>                         |
| <b>40 tablespoons<br/>of peanutbutter</b> | <b>Liver Cancer<br/>(Aflatoxin B)</b> |
| <b>100 charcoal broiled<br/>steaks</b>    | <b>Cancer<br/>(Benzopyrene)</b>       |

Source: Wilson, Pochin



# **Risks That Increase Chances of Death by 1 in a million**

| <u><b>Risk</b></u>                  | <u><b>Cause of Death</b></u> |
|-------------------------------------|------------------------------|
| <b>Smoking 1.4 cigarettes</b>       | <b>Ca, heart disease</b>     |
| <b>Spending 1 hr in a coal mine</b> | <b>Black lung disease</b>    |
| <b>Travelling 60 miles by car</b>   | <b>Accident</b>              |
| <b>Travelling 400 miles by jet</b>  | <b>Accident</b>              |

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# Medical Risk Information

## Think It Through: Managing the Benefits and Risks of Medicines

Share Tweet LinkedIn Email Print

PDF Version (PDF - 2 MB)

Content current as of:  
04/18/2018

Drug Information for  
Consumers

Educational Resources: Free  
Drug-Related Publications

Jumpstarting Drug Review

Buying & Using Medicine  
Safety

Frequently Asked Questions  
on Popular Topics

Prescription Drug  
Advertising

For many people, taking medication is a regular part of their daily routine, and these medicines are relied upon to treat disease and improve health. Although medicines can make you feel better and help you get well, it's important to know that all medicines, both prescription and over-the-counter, have risks as well as benefits.

The benefits of medicines are the helpful effects you get when you use them, such as lowering blood pressure, curing infection, or relieving pain. The risks of medicines are the chances that something unwanted or unexpected could happen to you when you use them. Risks could be less serious things, such as an upset stomach, or more serious things, such as liver damage. Here are some tips from the Food and Drug Administration and some of its public health partners to help you weigh the risks and benefits when you make decisions about the medicines you use.

### Managing Risk

When a medicine's benefits outweigh its known risks, the FDA considers it safe enough to

## FDA

<https://www.fda.gov/drugs/drug-information-consumers/think-it-through-managing-benefits-and-risks-medicines>

PMC U.S. National Library of Medicine National Institutes of Health

Advanced Journal list

Journal List • BMJ • v:327(7417); 2003 Sep 27 • PMC200818

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BMJ. 2003 Sep 27; 327(7417): 745-748.  
doi: 10.1136/bmj.327.7417.745

PMCID: PMC200818  
PMID: 14512489

### Strategies to help patients understand risks

John Paling, research director<sup>1</sup>

• Author information • Copyright and License information [Disclaimers](#)

See "Simple tools for understanding risks: from innumeracy to insight" on page 741.

This article has been cited by other articles in PMC.

### Associated Data

• Supplementary Materials

### Short abstract

Go to:

Explaining risks to patients in an effective way is an essential part of ensuring that consent is "informed." A consultant in risk communication discusses the strategies that can help doctors to communicate risks clearly, and thereby also build closer relationships with their patients

### Formats:

Article | [PubReader](#) | [ePub \(beta\)](#) | [PDF \(489K\)](#) | [Citation](#)

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### Similar articles in PubMed

Informing patients about risks and benefits of radiology examinations: a review article. [J Am Coll Radiol. 2011]

Decision aids: evolving from novelties to effective communication tools. [Med Decis Making. 2010]

Primer: Demystifying risk—understanding and communicating medical risks. [Nat Clin Pract Rheumatol. 2007]

Patient education and counseling in the context of modern patient-physician-family communication. [Patient Educ Couns. 1996]

Explaining risks: turning numerical data into meaningful pictures. [BMJ. 2002]

### Cited by other articles in PMC

Using Precision Environmental Health Principles in Risk

## Nat. Lib. Med.

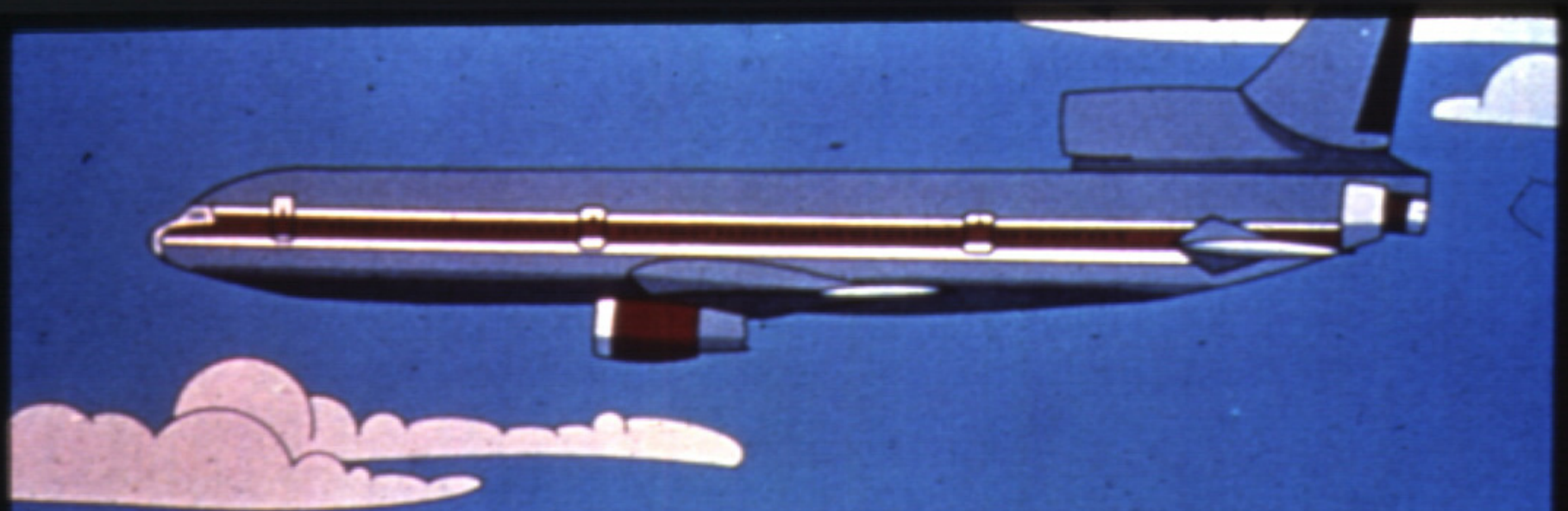
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC200818/>

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# FLYING IN AIRPLANE ABOVE 33,000 FT.

0.005 - 0.010 mSv/hr

(THE HIGHER YOU ARE AND THE FURTHER NORTH YOU GO,  
THE HIGHER THE EXPOSURE LEVEL.)

Rule #4

# DON'T JUST MINIMIZE RISK

- ✓ Compare risk and benefit
- ✓ Screening vs. Diagnosis vs. Intervention





**Overall**

**Risk of Fatal Ca =  $\frac{160,000}{\text{million}}$  = 16 %  $\pm$  ? %**

**Estimated**

**Radiogenic Risk of Chest x-ray =  $\frac{8}{\text{million}}$  = 0.0008 %**

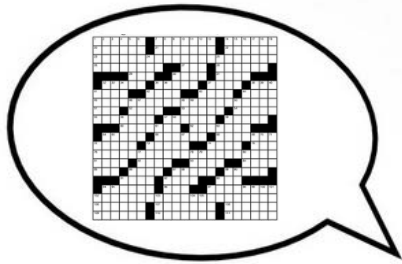
Rule #5

THE GOAL IS NOT TO  
GET THEM TO ~~AGREE~~  
WITH YOU

RIGHT ?

The goal is to transfer  
the **RIGHT** AMOUNT  
of the **RIGHT** INFORMATION  
at just the **RIGHT** TIME

~~Right~~



Rule # 1 - EMPLOY E.I. SKILLS

Rule # 2 - DON'T MISREPRESENT YOURSELF

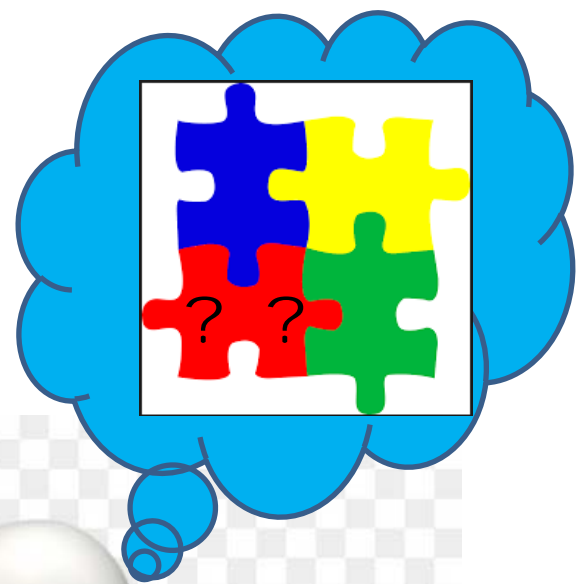
Rule #3 - HAVE CONCISE INFORMATION AT  
HAND

Rule #4 - DON'T JUST MINIMIZE RISK

Rule #5 - THE GOAL IS NOT TO GET THEM TO  
AGREE WITH YOU



# The (Happy) End



RIGHT !!!

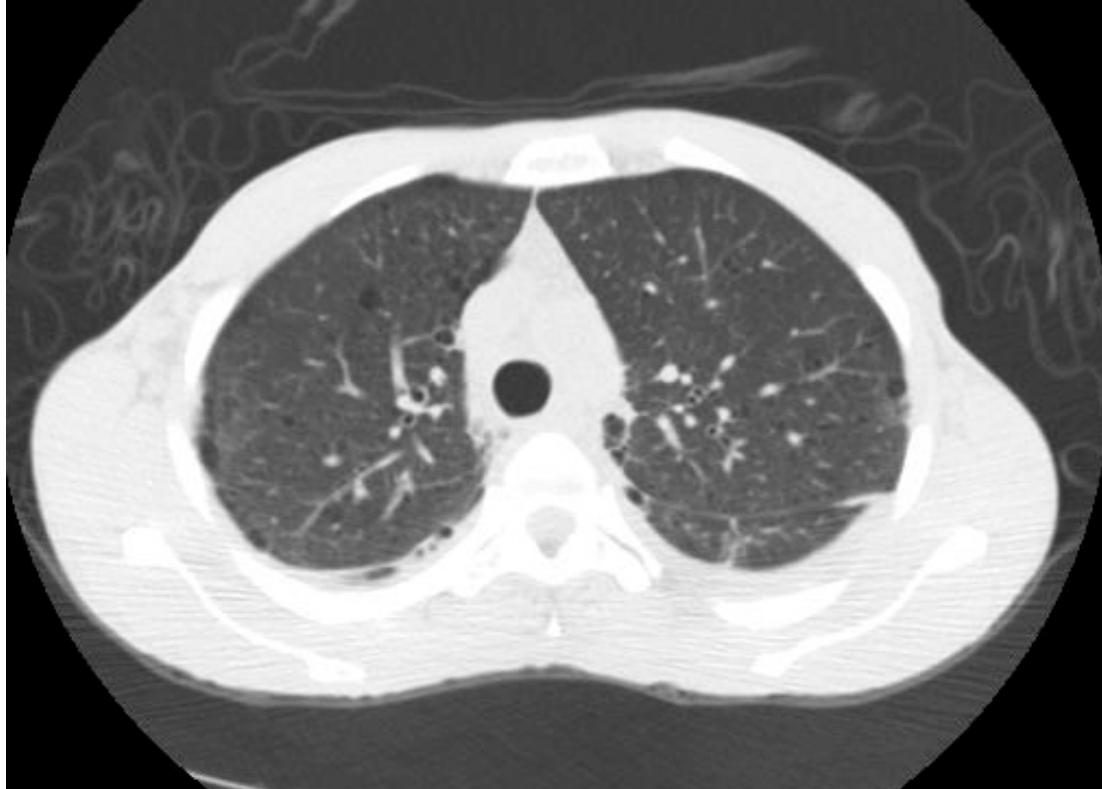




# Chest CT ~ 350 chest x-rays



Chest CT  $\sim 7$  mSv



***1 chest CT = how many chest x-ray  
examinations?***

# Typical annual doses (mSv) of exposed workers in diagnostic radiology

|                           |             |
|---------------------------|-------------|
| CT technologists          | 0.05 - 0.3  |
| General radiographers     | 0.05 - 0.5  |
| Fluoroscopy technologists | 2.0 – 4.0   |
| Radiologists              | 1.5 – 2.5   |
| Nurses                    | 1.80 - 2.24 |
| RT interns                | 0.40 - 0.7  |

Legal limit for radiation  
workers in the US - 50 mSv / year