

Increase in Child Leukemia

- Increase in leukemia across 21 of the 30 European areas surveyed
- Not due to radiation because doses were too small—who determined dose? UNSCEAR
- Dig Deeper and You find they didn't account for all the radionuclides: Sr-90 was left out of the dose reconstruction.

WHY?

Childhood leukaemia following the Chernobyl accident: the European Childhood Leukaemia-Lymphoma Incidence Study (ECLIS). *Eur J Cancer.* 1992;29A(1):87-95.

SR-90 Finland, UNSCEAR.

How do they determine dose?

Population Effects

Diseases

- Cancer
- Neurological Damage
- Genetic Damage**
- Heart Problems

** the industry is now disputing that this is a health effect at all and they are saying there is no evidence for it.

My concern lies here, though. Cancer vs. genetic damage.

Reality Check

Do the study protocols fit these conditions?

- low dose (for cell studies, how many hits to one cell)
- dose over what period of time?
- Internal dose (inhaled or ingested radionuclide?)
- External dose
- alpha, beta, gamma, x?

We are looking at the following parameters: Low doses (often below what they call background, but in addition to background) to a population over a number of YEARS (generations). Particularly through inhalation/ingestion.

Dose level: whole body dose: did the whole body actually get that dose, or was it organ or even cell specific? Ultimately, everything is cell specific.

Many cell generations? Subsequent irradiation? At what dose? Must be chronic. Gofman and the shattered glass analogy.

Cell/Tissue Studies/New Research

“everything we need to know is in the epi studies, this is just giving us the mechanisms”

In other words, this research would not change current assumptions about radiation effects.

In fact, I think it is in the epi studies, but they don't want to recognize this. They often disregard data that doesn't fit their preconceived notions/study expectations or discount certain diseases because they don't believe they can be caused by radiation. This is patently absurd.

Cellular Effects

- Bystander
 - Genomic instability
 - Adaptive Response
- cell type, cell part, cell phase, proteins produced/secreted or not, apoptosis versus necrosis versus failed repair.

Bystander effect: radiation hits a cell and a non-hit cell shows damage.

Genomic instability: Cell is hit, repairs but offspring show genetic damage.

Adaptive response: Cells are given a priming dose (low dose) before receiving a much higher dose of radiation. These cells show less damage than cells exposed to just the higher dose. There are some variations on this phenomena: in some studies the damage is found to be Less than would show from endogenous processes.
(draw curve)

Does it pass the reality check? No. Priming dose/ protracted doses. So why are they interested in it? Synthesize substances. Would have to be for life for people living in contaminated areas because these are protracted doses.

These were the definitions and the ones I still use, but the DOE studies is confounding the issue by saying you can have “positive” bystander effect and “negative” adaptive response.

The goal of these studies is to understand what these mechanisms are and how they interact. This is extremely complicated.

Fooled You

- Genetic Susceptibility among genetically similar individuals
- Populations of known sensitivity:
 - BRCA genes, AT (photosensitivity), Faconi's anemia
 - 10% total
 - Who else?
 - Worse with more radiation exposure?

Cover-ups

- Modeling (built on assumptions)
- Risk models and assessments (built on modeling)
- Radionuclide release (based on risk)
- Human exposure (estimated)

You would think that Modeling this data would maybe help piece together this complicated picture, but no. Modelers can often choose what data they want to incorporate and what data they do not (SR-90 in Chernobyl).

ICRP SAYS:

- They won't attempt to account for bystander effect and genomic instability even though they are real and quantifiable
- The quality of damage from radiation exposure is more damaging than that of regular cellular repair/tear down mechanisms.

They say they want to know the Mechanism first.

This has to do with how the Double Strand Breaks are spaced out. In radiation damage, they are clustered together, making repair difficult whereas in normal dsb's.

WHO/IAEA: a world of conflict

WHO

“promote and protect the health of all peoples...not merely the absence of disease or infirmity [but] the enjoyment of the highest attainable standard of health.”

IAEA

“to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world.”

Health study is NOT part of the IAEA mandate in their founding document. Nor should this be.

This highest attainable standard “is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.” In order to meet this objective, the WHO is “to act as the directing and co-ordinating authority on international health work... and to assist in developing an informed public opinion among all peoples on matters of health...”

Not only is IAEA’s mandate to *increase* the use of atomic energy worldwide, this statement in the IAEA statute (*Statute of the International Atomic Energy Agency*, 23 October 1956 with subsequent amendments. 2000) assumes without question or documentation that atomic energy *can* contribute to “peace, health and prosperity...”

What is NOT in the IAEA’s mandate is health study investigations after a major nuclear accident. They should not be at Chernobyl or involved in any health studies there. It is a conflict of interest.

A Bad Match

Agreement WHA 12.40 between IAEA and WHO states:

- “whenever either organization proposes to initiate a programme or activity on a subject in which the other organization has or may have a substantial interest, the first party shall *consult the other with a view to adjusting the matter by mutual agreement.*
- “recognize that they may find it necessary to apply certain limitation for the safeguarding of confidential information furnished to them. They therefore agree that nothing in this agreement shall be construed as requiring either of them to furnish such information as would, in the judgement of the party possessing the information...*interfere with the orderly conduct of its operations.*

This agreement was made in 1959.

In English this means that if either WHO or IAEA have a program of substantial interest to the other, like investigation of radiation health effects after the Chernobyl explosion, they must consult with each other and change the matter to their liking.

The second statement means that if there is any info known to either organization that would jeopardize it's mandate, they don't have to share it with the other, such as health effects from the Chernobyl disaster.

UNICEF SAYS

- Congenital and Circulatory Disease
- Nervous System Disorders
- Sensory Organ Disorders
- Blood Circulatory Illness
- Disorders of the Bone, Muscle & Connective Tissue System
- Malignant Tumors

UN exhibit April 2001.