Nuclear: War of Human Consequences

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Presentation posted:

http://tinyurl.com/OlsonVienna-srolldownpage
The energy profile of a nuclear explosion:
Icons used in this paper:

- Blast / Shock
- Fireball / Thermal
- Immediate Gamma / Neutron Radiation
- Fall-Out / Persistent Radioactivity
Nagasaki, 1945
• Blast: Immediate Medical Consequences
Thermal: Immediate medical consequences

At Ground Zero temperatures are as hot as the surface of the sun (7000° F / 3800° C)

Resulting winds of 160 -- 500 mph / 250 -- 800 kph leveling people, homes and vegetation;

Immediate updraft of mushroom cloud carries particulate to atmosphere.
Immediate Air Radiation levels: Lethal if not shielded

**Hiroshima:**
Gamma rays: 10,300 rads / 103 Gy;  
Estimated neutrons: 14,100 rads / 141 Gy

**Nagasaki:**
Gamma rays: 25,100 rads / 251 Gy  
Estimated neutrons: 3,900 rads / 39 Gy

**Lethal level ~ 4.5 Gy**
Acute High-Dose Ionizing Radiation: Immediate Medical Consequences

In the human body systemic failure is in three forms:

1. (> 30 Gy whole body) Cerebrovascular syndrome
2. (6 to 30 Gy whole body) Gastro-Intestinal syndrome
3. (1 to 6 Gy whole body) Hematopoietic syndrome
<table>
<thead>
<tr>
<th>City</th>
<th>Estimated Population at the time of the bombing</th>
<th>Estimated number of acute deaths (with 2 – 4 months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hiroshima</td>
<td>340,000 – 350,000</td>
<td>90,000—166,000</td>
</tr>
<tr>
<td>Nagasaki</td>
<td>250,000—270,000</td>
<td>60,000—80,000</td>
</tr>
</tbody>
</table>

Source: Radiation Effects Research Foundation
At Hiroshima, 270 of 300 Doctors perished and also 1654 of 1780 nurses

Source: ICRC Resource Center
Climate and Public Health Impacts

- Firestorms from 100 Hiroshima-size bombs used against modern cities would inject 5 teragrams of smoke and soot into the atmosphere, blocking sunlight from reaching the Earth.

Multiple nuclear explosions can destroy societies/ecosystems.

2 billion dead from starvation alone?

International Physicians for the Prevention of Nuclear War
Ionizing Radiation: No Safe Dose

• All regulatory agencies acknowledge that every exposure to ionizing radiation carries risk of harm:

There is no “safe” dose of ionizing radiation:
It is not safe for adult males.
Recent findings:
Ionizing radiation is even less safe for children and for females.
Visible damage from Plutonium emitting alpha radiation in lung tissue
Radiation Induced Chromosomal Aberrations, as seen with microscope

- Dicentric
- Ring
- Fragment
RADIATION HAS INTERGENERATIONAL CONSEQUENCES

Radiation is different from any other poison.

Radioactivity lasts for many thousands of years. If it gets into the land, water, plants and animals, it might be too dangerous to go there, to hunt, or to collect water for many generations.

Radiation causes cancer. The most common cancers caused by radiation are cancer of the thyroid, bone, lung and kidney. Radiation is a risk for every generation, before and after you were born.

Uranium in the water can cause kidney damage.

Mining uranium increases people's exposure to radiation.

There is no safe dose of uranium.

IT BREAKS THE STORIES OUR BODIES HOLD THAT KEEP US HEALTHY. DAMAGED STORIES CAN BE PASSED ON TO OUR CHILDREN.
Ionizing Radiation: Non-Cancer Medical Impacts
Medical Impacts of Ionizing Radiation: Cancer

Ionizing radiation harms our cells.
Radiation is more harmful to children

Children Between Birth and 5 Years
U.S. National Academy of Science: Biological Effects of Ionizing Radiation (BEIR VII Phase 2) published 2006.
Lifetime Risk of Cancer Incidence (acute exposure between birth and age five)
Increased Cancer Risk by Age at Exposure to 20 mSv Radiation

Data points from: U.S. National Academy of Sciences BEIR VII Phase 2 Risk Model
Lifetime Cancer fatalities among those exposed to ionizing radiation as adults

2 Men

3 Women
Increased Cancer Risk by Age at Exposure to 20 mSv Radiation

U.S. National Academy of Sciences BEIR VII Phase 2 Risk Model
Possible Factors in Gender Difference

Females have 50% more high-risk tissue compared to males.
“Collateral Damage” Nuclear Power Stations Could Multiply Radiological Impacts
Earth will be more safe, people will be more healthy when we have ended the Atomic Age, peacefully, by investing in strong and just agreements.

-- view of a traditional healer
Nuclear War
No Cure Only Prevention

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