Making Medical Nuclearity: How the unequal burden of risk from Co-60 cancer therapy units reflects racial and economic inequality in the Americas

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UNEQUAL BURDEN OF RISK. The colonial distribution of cobalt-60 radiotherapy technologies perpetuates racist and economic power structures in the Americas by concentrating radiological risk in low- and middle-income Latin American countries while the US and Canada benefit economically from the industry. When accidents do happen in the most risky, resource-poor countries, individual doctors, hospitals, and countries are blamed. I, instead, examine the larger system which maintains the status quo of unequal risk.

INDUSTRY. US and Canada manufacture Co-60 units and sources. Use of Co-60 to treat cancer is due to Atoms for Peace, a US campaign to justify the development of nuclear weapons.

DISTRIBUTION. In the 1970s and ’80s, Co-60 units phase out in the US and Canada, as they are risky, and are donated to low-income Latin American countries. Safer, but costlier, linear accelerators, “linacs,” are used much more in the US and Canada than Co-60 units.

LIMITED MEANS. Recipient Latin American hospitals have limited financial means to properly dispose of used equipment. To properly dispose of Co-60 units and sources, they must be shipped back to the manufacturer, which is prohibitively expensive.

UNSAFE NUCLEAR STORAGE. Recipient Latin American hospitals and countries are left to deal with highly radioactive nuclear waste from used Co-60 units and sources. Low-income Latin American countries lack the infrastructure of the US and Canada to store most nuclear technologies and waste.

RISK TO THE PUBLIC. Spent, but still highly radioactive, Co-60 is not secured properly.

Scavengers find these units and damage them intending to sell them for scrap. Scavengers or scrapyard workers are at most risk for radiation poisoning from handling a Co-60 unit or source.

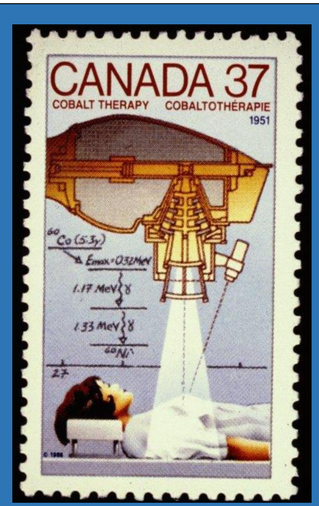
Co-60 gets mixed with non-radioactive scrap metal and contaminates it. Scrap metal is not monitored for radiation as much as in the US or Canada (where it is required by law).

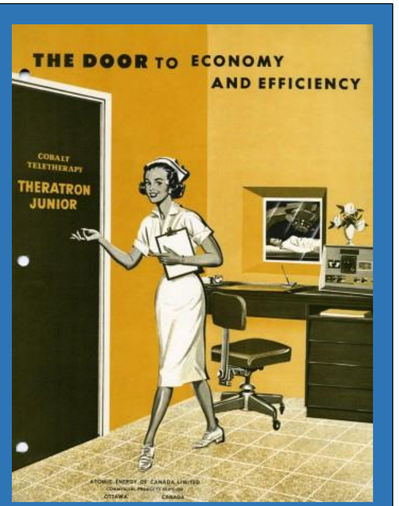
Large-scale accidents, affecting the public, are more likely to occur. For example, Ciudad Juarez, Mexico, 1984, when 4,000 people were exposed to radiation; Goiania, Brazil, 1987, 249 people were exposed; and Hueypoxtla, Mexico, 2013, when six people were exposed.

RISK TO PATIENTS. The riskiest machines are used in countries with the fewest resources to safeguard them, putting hospital staff and patients at risk.

Overdoses and underdoses can go uncaught for much longer than in the US and Canada.

Large-scale accidents are more likely to occur. For example, San Jose, Costa Rica, 1996, when 114 patients were overexposed, and Panama City, Panama, 2001, when 28 patients were overexposed.





DEVELOPMENT OF THE MACHINE. Colloquially known as “cancer bombs,” Co-60 cancer therapy units were developed in Canada after WWII and first used in 1951. Canada remains a leader in Co-60 source manufacturing. Sources are produced in Canadian nuclear reactors and shipped globally.