



**Mount  
Sinai**

## **Radiation Safety Office**

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To Whom It May Concern:

My name is Dr. Jacob Kamen and I am an Associate Professor of Radiology at Icahn School of Medicine at Mount Sinai as well as the chief Radiation and Laser Safety Officer for Mount Sinai Health System.

I am writing to voice my support for the transition from cesium-137 blood irradiators to alternative technology, such as x-ray blood irradiators. Cesium-137 is a highly radioactive and dispersible isotope used in open hospital facilities, such as blood banks, and can be stolen or misused to make a radiological dispersal device, or a “dirty bomb.” Since transitioning to x-ray technology in March 2017, our quality of care for sterilizing blood has remained the same and we operate in both a medical environment and high-profile city with much less risk.

One of my key responsibilities as a Radiation Safety Officer is to inform my senior management about any radiation risks. Over the past several years, we have deliberated the high costs associated with the disposal of a cesium irradiators that are no longer in use or needed, once commercial disposal becomes available, the potential liability to our institution involving a malicious act and the associated insurance costs to cover extensive radiation remediation and decontamination costs from such an event, and the availability of U.S. federal programs such as the National Nuclear Security Administration’s (NNSA) Off Site Source Recovery Program and the Cesium Irradiator Replacement Program (CIRP) which assists with the removal of these disused sources and provides a federal subsidy towards the purchase of an alternative x-ray technology.

Mount Sinai Health System began with replacing one of its four cesium irradiators with one x-ray irradiator. Initially we used cesium and x-ray irradiators side-by-side, but today we have fully transitioned away from using a cesium irradiator. Due to recent advances in x-ray technology, Mount Sinai purchased a self-cooling and self-shielding x-ray irradiation system, which has alleviated the breakdown frequency associated with earlier technology and models. While many medical facilities have expressed concern over the increased breakdown of x-ray irradiators compared to cesium, we have yet to encounter any such problem. In fact, Mount Sinai proactively took steps to mitigate any potential issues, such as sending three of our staff members to the manufacturer’s headquarters to be trained in the proper use of these irradiators in addition to repairing them should the need arise. This training benefits both the x-ray equipment manufacturer and Mount Sinai. The manufacturer does not have to send representatives to New York every time an error message pops up and Mount Sinai receives a financial discount from the company through their annual warranty program.

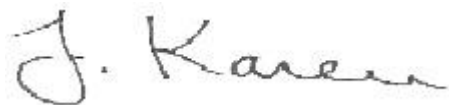
To date, our transition has been very successful. By way of example, we have never had to use the external back-up facilities. In fact, x-ray blood irradiators have proven to be far more superior in performance than their cesium-137 counterparts: they consistently take less than 5 minutes to irradiate six blood bags, compared to an aging cesium source, which can take up to 12 minutes to irradiate just four bags. As a high throughput facility for blood products, the conversion to x-ray has increased our overall capabilities for sterilizing blood products.

Last October, Mount Sinai hosted an event in partnership with the New York City Department of Health (NYCDOH), the Nuclear Threat Initiative (NTI), NNSA, and other partners to replace as many of the 30 cesium devices in New York City as possible with alternative x-ray technologies that cannot be used to make a dirty bomb. As a result, NYCDOH has received commitments from 10 different hospitals to replace a total of 28 out of the 30 cesium-137 blood and research irradiators in New York City. This first of its kind, city-wide initiative has served as a model for other cities across the United States (Los Angeles, San Francisco, Atlanta), and other international partners in Norway and France are leading the way with similar phase out campaigns.

In my professional opinion, there is neither a medical reason to delay the transition from cesium-137 blood irradiators to x-ray technology nor an economical reason given that the NNSA provides assistance to ease the financial burden. There is, however, a security imperative to start to phase them out immediately with effective and comparable x-ray technology. After all, this is for the security of our own cities, the preservation of our public health care mission and the safety of our own families.

Sincerely,

Dr. Jacob Kamen

A handwritten signature in black ink that reads "J. Kamen". The signature is written in a cursive, slightly slanted style.

Jacob Kamen, Ph.D., ABHP  
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