

Potential Exposure of Pregnant Women to Multiple Hazards Resulting from the Explosion of a ‘Dirty Bomb’

J.J. Russell and M.R. Sikov**

** U.S. Transuranium and Uranium Registries, Washington State University Tri-Cities,
2710 University Drive, Richland, Washington 99352*

Some scenarios suggest the possibility of exposure of populations to an explosive device or ‘dirty bomb’ containing radioactive material while attending a public event in an enclosed facility such as an indoor stadium or shopping mall by a terrorist group. A variety of hazardous substances might be included in the device or generated by interactions of the explosives – these could exacerbate the effects of the radiation or the internalized radionuclides. Moreover, such populations might include children and pregnant women, group that have shown special sensitivities to induction of early and delayed radiation effects. The combination of radionuclides mixed with hazardous substances from a ‘dirty bomb’ explosion might result in potential additive or synergistic effects far greater than either alone and have an impact because of the sensitivity of particular populations.

Some carcinogens and co-carcinogens have been found to interact with radiation exposure and other substances have been shown to be especially toxic in the perinatal period. Another concern is that worker exposure could arise from simultaneous or sequential internal exposure to radioactive material, infectious agents, carcinogens and or co-carcinogens while performing a variety of duties in the cleanup of mixed hazardous waste at such a disaster site and that these may act synergistically. There is an extensive literature documenting bioeffects of radiation exposures, infectious agents and a variety of chemicals. There is not yet a complete description of the impact of such complex mixtures of environmental insults interacting among themselves or on potentially sensitive populations but there is sufficient information to identify first level protective measure and or public responses.

USTUR-0188-03