A nuclear war would realistically involve many nuclear weapons targeting many cities in a country, making for an enormous humanitarian catastrophe basically impossible for any health care system to deal with. But even if just one average-sized nuclear weapon (100 kiloton) were to be detonated over Moscow today, the immediate health impact would be catastrophic. An estimated 251,800 people could die immediately and another 1,098,310 could be injured. Based on Moscow’s population of over 12.5 million, one out of nine people in Moscow would be injured or killed.

At the reported COVID peak through 2021 on 6 November 2021, 63,205 new COVID cases were reported in one day in all of Russia. After a nuclear attack, about 17 times more people would need medical attention immediately in just one city.

### Immediate Health Impacts

A fireball would extend out about 380 meters in every direction from the detonation point. If the bomb were dropped over the Kremlin, that means that the Red Square, Saint Basil’s Cathedral and Lenin’s Mausoleum would be engulfed in a nuclear fireball and instantly vaporised.

To a distance of a little over 1 km from the detonation point the explosion would likely generate a fatal dose of ionising radiation. In Moscow, for this bomb dropped on the Kremlin, this would include libraries, museums and parks, including the Russian State Library, the Bolshoi Theatre and Zaryadye Park.
How could Moscow respond to a health crisis of this proportion? Russia has about 401 doctors per 100,000 people and 854 nurses and midwives per 100,000 people, which translates to roughly 50,326 doctors and 107,110 nurses and midwives in Moscow. If 10% of that population is injured or dies from the nuclear explosion, that leaves about 44,907 doctors and 95,577 nurses to treat over 1 million injured people. That means every doctor in Moscow would be responsible for treating about 25 injured people, many with severe injuries, simultaneously.

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Within 3.26 kilometers in every direction from the center, there would be blast damage, with most residential buildings collapsing, and local fires starting from the destruction. Everyone in this zone would be injured, and many would die. In Moscow, this circle includes at least six hospitals as well as Russia’s Ministry of Foreign Affairs, theatres, museums and parks.

Within 4.38 km, people would suffer third-degree burns on all exposed skin. Technology may be disrupted by an electromagnetic pulse. This zone would include at least two additional hospitals.

A full 9km from the center of the blast, glass windows would shatter, causing additional injuries to anyone in the vicinity and some technology may be disrupted by an electromagnetic pulse. Within this zone would be the Pediatric Burn Center at Speransky Hospital, one of Russia’s largest burn units.

Healthcare Response Capacity

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The largest burn center in the city would be overwhelmed by hundreds of times more people in a day than it treats in a year.

available beds would be drastically overwhelmed by more than one million injured people.

Inozemtsev City Clinical Hospital’s Burn Center, which would not be destroyed by the blast, is one of the largest burn care centers in Moscow, treating about 1,500 patients a year. The center would be overwhelmed by hundreds of times more people in a day than it typically treats in a year. The hospital has 86 intensive care unit beds.

Russia may prepare to use nuclear weapons but its health care infrastructure is not and cannot be prepared for the humanitarian catastrophe that would result from the use of just one nuclear weapon.