



## A Prescription for Survival

*Deans call for a nuclear weapons free world*

For more than 50 years health professionals have played a central role educating the public about the medical consequences of nuclear war and the need to eliminate nuclear weapons.<sup>1 2 3 4</sup> Our voice was particularly important during the last decade of the Cold War when the danger of nuclear war was widely perceived as an imminent threat to human survival.<sup>5 6 7 8 9 10 11 12</sup> Since the end of the Cold War public awareness of the continued danger posed by these weapons has faded. Unfortunately the danger itself has not gone away; two decades after the end of the Cold War there remain in the world more than 22,000 nuclear warheads, enough to destroy the human race many times over.<sup>13</sup> Health professionals must again take up our responsibility to protect public health by educating the public about the danger of nuclear war, and by convincing our leaders to make good on their promises to eliminate these weapons.

Today it is not just the arsenals of the nuclear super powers that threaten human survival. In addition to the five permanent members of the UN Security Council, Israel, India, Pakistan, and North Korea now possess nuclear arsenals. Further, there is widespread concern that Iran is also trying to build nuclear weapons, a development that could spur a dangerous new arms race in the Middle East.

The arsenals of India and Pakistan are of particular concern given their size—approximately 80 warheads each—and the ongoing tension between these two states.<sup>14</sup> Recent studies have shown that if only 100 of the weapons in their combined arsenals were used in a war targeting population centers, 20 million people would die in the first few hours in the firestorms that would engulf the great cities of the subcontinent, and vast areas would be contaminated with deadly radioactive fallout. In addition the firestorms would loft some 5 million tons of soot and dust into the upper atmosphere dropping temperatures across the globe an average of 1.25° C and reducing precipitation worldwide, with both these effects lasting up to a decade.<sup>15 16</sup> There have been no detailed studies yet on the effect of this climate disruption on agriculture and human nutrition, but there is reason to fear that it could cause a global famine of historic proportions.

The increasing danger posed by the proliferation of nuclear weapons has prompted a growing chorus of senior defense experts to call for urgent new steps to eliminate nuclear weapons. In January of 2007 Henry Kissinger, George Schultz, William Perry and Sam Nun declared: “Reassertion of the vision of a world free of nuclear weapons and practical measures toward achieving that goal would be, and would be perceived as, a bold initiative consistent with America’s moral heritage. The effort could have a profoundly positive impact on the security of future generations.”<sup>17</sup>

Still it is not the arsenals of these new nuclear powers that pose the greatest danger. Ninety-five percent of the nuclear weapons in the world today remain in the arsenals of the US and Russia. Even under the New START Treaty they are each allowed to keep 1550 deployed strategic nuclear weapons and thousands of non deployed and all of their non strategic warheads. A 2002 study showed that if only 300 of the weapons in the Russian arsenal were targeted at US cities, 70 to 100 million people would die. In addition the attack would destroy the communications and transportation networks and the rest of the social infrastructure on which modern societies depend. Over the following months the vast majority of the population not killed in the initial attack would die of starvation, exposure and disease. The US counterattack on Russia would cause the same level of devastation there.<sup>18</sup>

As in the case of a regional war in South Asia, the direct effects of this large scale nuclear war would be only a small part of the picture. If the full strategic arsenal allowed under New START were drawn into the conflict, the resulting firestorms in the US and Russia would loft upwards of 150 million tons of debris into the upper atmosphere. In a matter of days, temperatures would plummet across the globe by an average

of 8° C. In the interior regions of North America and Eurasia, temperatures would fall as much as 30° C. In the temperate regions of the Northern Hemisphere there would not be a single day free of frost for 3 years.<sup>19 20</sup> Agriculture would stop, ecosystems would collapse. The vast majority of the human race would starve to death and it is possible that homo sapiens could become extinct.

Those who argue for the continued reliance on nuclear weapons believe that such a conflict will never happen. They assume, apparently, that the technical systems that control nuclear forces will never fail and that human decision makers will always act rationally and with sound judgment. As health professionals we are daily witness to failures of technical systems and mistakes in judgment by even the best clinicians. We, and the technology we have created, are simply not infallible. When mistakes occur in the medical setting patients suffer and sometimes die. If the wrong mishap occurs in the management of our nuclear arsenals it may be civilization itself that perishes.

There have been at least five occasions since 1979 when either the US or Russia believed, in error, that it was under attack by the other side, and prepared to launch a counterattack.<sup>21</sup> The most recent of these episodes occurred in January of 1995 five years after the fall of the Berlin Wall. On each of these occasions we were minutes from a major nuclear war. Our leaders have worked with skill and determination to prevent an accidental nuclear war. But if we are honest we must confess that our survival over the last 30 years owes much to simple good luck. We cannot assume that our luck will hold out forever.

Speaking in Prague in April of 2009, President Obama called for a world free of nuclear weapons, but said that it might not happen in his lifetime.

We believe, as a matter of public health policy, that nuclear weapons must be eliminated in the near future. We therefore call on President Obama and the leaders of other nuclear weapons states to begin immediately to take the next steps towards the reduction of their nuclear arsenals. The US and Russia should enter into negotiations to further reduce their nuclear arsenals. The US Senate should ratify the Comprehensive Test Ban Treaty to end all nuclear test explosions. And the US and other nuclear powers should move to conclude a treaty banning the further production of weapons grade fissile materials. All of these steps should be undertaken with the intention of moving, as soon as possible, to negotiations for a treaty eliminating nuclear weapons altogether.

We call on our colleagues in the medical and public health communities to support such efforts and to educate their colleagues, patients and communities about the enormous danger we face as long as these weapons exist.

Sincerely,

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## Endnotes

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- <sup>1</sup> Nathan DG, Geiger HJ, Sidel VW, Lown B. The medical consequences of thermonuclear war: Introduction. *N Engl J Med* 1962; **266**:1126–27.
- <sup>2</sup> Ervin FR, Glazier JB, Aronow S, Nathan DG, et al. The medical consequences of thermonuclear war: I. Human and ecologic effects in Massachusetts of an assumed thermonuclear attack on the United States. *N Engl J Med* 1962; **266**:1127–37.
- <sup>3</sup> Sidel VW, Geiger HJ, Lown B. The medical consequences of thermonuclear war: II. The physician's role in the postattack period. *N Engl J Med* 1962; **266**:1137–45.
- <sup>4</sup> Leiderman PH, Mendelson JH. The medical consequences of thermonuclear war: IV. Some psychiatric and social aspects of the defense-shelter program. *N Engl J Med* 1962; **266**:1149–55.
- <sup>5</sup> Hiatt HH. Preventing the last epidemic: II. *JAMA* 1981; **246**(18): 2035–6.
- <sup>6</sup> Lown B, Muller J, Chivian E, Abrams H. The nuclear arms race and the physician. *N Engl J Med* 1981; **304**(12): 726–9.
- <sup>7</sup> Lown B. Physicians and nuclear war. *JAMA* 1981; **246**(20):2331–3.
- <sup>8</sup> Abrams HL. Special report. Medical problems of survivors of nuclear war: infection and the spread of communicable disease. *N Engl J Med* 1981; **305**(20):1226–32.
- <sup>9</sup> Hiatt HH. Preventing the last epidemic: II. *JAMA* 1981; **246**(18): 2035–6.
- <sup>10</sup> Lundberg GD. Hiroshima. *JAMA* 1983; **250**(5):617.
- <sup>11</sup> Relman AS. Physicians, nuclear war, and politics. *N Engl J Med* 1982; **307**:744–5.
- <sup>12</sup> Cassel CK, Jameton AL, Sidel VW, Storey PB. The physician's oath and the prevention of nuclear war. *JAMA* 1985; **254**(5):652–4.
- <sup>13</sup> <http://www.fas.org/programs/ssp/nukes/nuclearweapons/nukestatus.html>
- <sup>14</sup> Ibid.
- <sup>15</sup> Robock A, Oman L, Stenichikov GL, Toon OB, et al. Climatic consequences of regional nuclear conflicts. *Atm Chem Phys* 2007; **7**: 2003-12.
- <sup>16</sup> Robock A, Toon OB. Local nuclear war, global suffering. *Sci Am* 2010; **302**(1): 74-81.
- <sup>17</sup> Shultz GP, Perry WJ, Kissinger HA, Nunn S. A world free of nuclear weapons. *The Wall Street Journal*. Jan 4, 2007: A15
- <sup>18</sup> Helfand I, Forrow L, McCally M, Musil RK. Projected US casualties and destruction of US medical services from attacks by Russian nuclear forces. *Medicine and Global Survival* 2002; **7**(2):68-76.

- <sup>19</sup> Toon OB, Robock A, Turco RP. Environmental consequences of nuclear war. *Physics Today*. 2008; **61**(12): 37-42.
- <sup>20</sup> Robock A, Oman L, Stenchikov GL. Nuclear winter revisited with a modern climate model and current nuclear arsenals: still catastrophic consequences. *J Geophys Res*. 2007; **112**: D13107, doi:2006JD008235.
- <sup>21</sup> Dumas LJ. *The Technology Trap: Where Human Error and Malevolence Meet Powerful Technologies*. Santa Barbara CA: Praeger, 2010, pp 145-72.