community health workers, pay-
ers, and policymakers will need
to continue to address these is-
ssues through better communica-
tion with patients and families
and increased care coordination
and by providing care in the
most appropriate setting.

The terms of Maryland’s agree-
ment with CMS require the state
to transition to a model that will
reduce costs and improve quality
over the full spectrum of care —
not just hospital services — by
2019. In 2014, the state’s total
per capita costs of care decreased
by 0.64%, almost entirely as a re-
sult of reductions in hospital
expenditures. CMS has launched
a number of programs that can
guide efforts to promote deliv-
ery-system transformation, such
as bundled-payment initiatives and
patient-centered medical homes.
Because of the unique nature of
the all-payer rate-setting system,
however, CMS has empowered
Maryland to develop its own pay-
ment models. This opportunity
to test all-payer reform over the
full spectrum of care will not
only benefit Maryland but also
provide important insights for
other states seeking to further ac-
celerate delivery-system reform.

CMS is committed to working
with Maryland to design and
launch new all-payer payment
models that connect all health
care providers, hospital and non-
hospital, through value-based care
models that are appropriate for
the state’s rate-setting system.
Maryland can also integrate local
delivery-system reform efforts
with public health activities and
regional collaboration efforts to
build the infrastructure to sup-
port these new approaches. The
global budget program promises
to catalyze such integration.
Through their fixed and guar-
anteed budgets, hospitals can of-
fer providers incentives such as
per-member per-month payments,
shared savings, or capital fund-
ing for investments in care re-
design.

CMS has previously described
engaging multiple payers in pay-
ment models as a foundational
principle in achieving delivery-
ystem reform.5 Maryland is
moving closer to that goal. As its
all-payer model evolves, it will be
important for hospitals, physi-
cians, payers, consumer groups,
and policymakers to combine
their efforts to reflect a unified
vision.

Both the state of Maryland and
its hospitals deserve credit for
these promising early results.
CMS remains committed to
working with Maryland and the
provider community to ensure
the continued success of this
model. We see innovation in hos-
pital payment as an important
part of CMS’s growing efforts to
reform delivery systems.

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Maryland’s all-payer approach to delivery-
2. Murray R. Setting hospital rates to control
costs and boost quality: the Maryland experi-
ence. Health Aff (Millwood) 2009;28:1395-
405.
3. Blumenthal D, Stremikis K, Cutler D.
Health care spending — a giant slay or
4. Centers for Medicare & Medicaid Ser-
icies. Hospital consumer assessment of
health providers and systems (https://data.
medicare.gov/Hospital-Compare/Patient-
survey-HCAHPS-Hospital/dgck-syfz).
5. Rajkumar R, Conway PH, Tanner M.
CMS — engaging multiple payers in pay-
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Docs and Nukes — Still a Live Issue
Ira Helfand, M.D., and Victor W. Sidel, M.D.

Seventy years ago, the medical
profession alerted the world
to the devastating effects of nu-
clear weapons. Just weeks after
the bombing of Hiroshima, Dr.
Marcel Junod, a representative
of the International
Committee of the Red Cross
in Japan, visited the devastated
city and sent back one of the first
eyewitness reports to reach the
outside world: “The center of
the city was a sort of white patch,
flattened and smooth like the
palm of a hand. Nothing re-
mained.”

Ever since that time, members
of the medical profession have
played a key role in warning gov-
ernments and the public about
the danger of nuclear war and the
urgent need to abolish nuclear
weapons. During the period of
intense international tension that
Since the end of the Cold War, the medical community has paid far less attention to nuclear weapons. We, like most of the world, have acted as though the danger of nuclear war were a thing of the past.

physicians have had in preventing nuclear war, the IPPNW was awarded the 1985 Nobel Peace Prize.

In the years since the end of the Cold War, the medical community has paid far less attention to this issue. We, like most of the world, have acted as though the danger of nuclear war were a thing of the past. To the extent that we have considered the matter, we have focused on the possibility that terrorists or “rogue states” such as North Korea and Iran will acquire nuclear weapons. Although these are important threats, it is critical that we understand that the greatest danger is posed by the arsenals of the countries that already have nuclear weapons. There remain in the world today more than 15,000 nuclear warheads, 95% of which are in the arsenals of the United States and Russia.\(^1\) Of these warheads, some 2000 are on hair-trigger alert. They can be fired in less than 15 minutes and can destroy their targets across the globe 30 minutes later.

These weapons pose an existential threat to humanity. A 2002 study showed that if just 300 Russian warheads got through to targets in the United States, 75 million to 100 million people would die from the blast and heat effects in the first half hour.\(^2\) In addition, the entire economic infrastructure on which we depend and the medical care system, the communications network, the electric grid, the banking system, the food distribution system — all would be gone. In the months after such an attack, the vast majority of Americans not killed in the initial attack would die from starvation, radiation sickness, epidemic disease, or exposure to the elements. A corresponding U.S. attack would create the same devastation in Russia, and if NATO were drawn into the war, much of Europe would suffer the same fate.

As incomprehensible as these direct effects are, they are only a part of the picture. The fires created by the use of nuclear weapons over urban targets would loft enormous quantities of black soot into the atmosphere, disrupting climate worldwide. A war involving the strategic weapons deployed today by the United States and Russia would generate some 150 million tons of soot, enough to reduce temperatures around the world by an average of 8°C. In the interior regions of North America and Eurasia, temperatures would drop by as much as 30°C, to levels not seen in 18,000 years, since the coldest point of the last ice age.\(^3\) Food production would collapse, the vast majority of the human race would starve, and it’s possible that our species would become extinct.

For 25 years, since the end of the Cold War, we have been told that we did not need to worry about war between the United States and Russia. The deepening crisis in Ukraine and President Vladimir Putin’s repeated nuclear threats give the lie to these assurances: armed conflict between the nuclear superpowers remains a real possibility. Even if neither side ever uses its nuclear weapons

preceeded the Cuban Missile Crisis, the Journal devoted the issue of May 31, 1962, to articles prepared by members of the newly formed Physicians for Social Responsibility (PSR), detailing the medical consequences of nuclear war.

During the period of increased Cold War tension in the early 1980s, the medical community mobilized again to educate the public about the enormous threat to public health posed by the arms race. Working with PSR, medical schools throughout the country organized public symposia to explain what would actually happen if nuclear weapons were used. A newly formed global federation called the International Physicians for the Prevention of Nuclear War (IPPNW), of which PSR became the U.S. affiliate, carried out similar educational work around the world. Doctors met with Presidents Ronald Reagan and Mikhail Gorbachev to urge them to end the arms race that had brought the world to the brink of nuclear annihilation.

These efforts had a profound impact. In his memoirs, Gorbachev described the effect his meetings with physicians had on his thinking about nuclear weapons when he was launching the series of initiatives, ultimately embraced by the United States, that led to the end of the arms race. For this work, and in recognition of the special role and responsibility that physicians have had in preventing nuclear war, the IPPNW was awarded the 1985 Nobel Peace Prize.

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deliberately, there remains the very real danger of accidental nuclear war. We know of at least five times since 1979 when either Moscow or Washington prepared to launch nuclear weapons in the mistaken belief that it was already under attack by the other side. U.S. military leaders now warn that cyberterrorists might be able to launch a U.S. or Russian nuclear missile.

Even a much more limited, regional nuclear war, as might take place between India and Pakistan, would have catastrophic consequences worldwide. Studies have shown that a war involving only 100 Hiroshima-sized weapons, less than 0.3% of the world’s nuclear arsenals, would cause temperatures to fall an average of 1.25°C around the world. Climate disruption of this magnitude would cause major declines in world agricultural output. At this time, there are some 800 million people who are malnourished and 300 million who get adequate nutrition but live in countries that depend on food imports that would not be available in the event of such a war. There are also about 1 billion people in China, which would see particularly severe effects on food production, who have not shared in China’s recent economic growth. All these people, some 2 billion, would be at risk in the “nuclear famine” that would follow even a limited nuclear war.5

In recognition of this grave threat to human survival, governments around the world have come together over the past 3 years in a series of extraordinary conferences to discuss the medical consequences, what they have called the humanitarian impact, of nuclear war. A total of 116 countries have signed the Humanitarian Pledge to seek a new treaty to fill a key gap in international law, which does not yet prohibit the possession of these weapons, and to push for their abolition.

We believe the medical community has a responsibility to support this movement. The American Medical Association recently passed a resolution calling on all nations to “ban and eliminate nuclear weapons,” and the World Medical Association is considering a similar resolution at its Moscow meeting in October. Physicians need to act on these resolutions, sounding the alarm for a world that has grown dangerously complacent about the nuclear peril as we drift closer to an unimaginable catastrophe. We need to again educate our patients, the general public, and our political leaders about the medical consequences of nuclear war and the urgent need to abolish these weapons before they are used.

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