Peace through Health
IPPNW Students Basel

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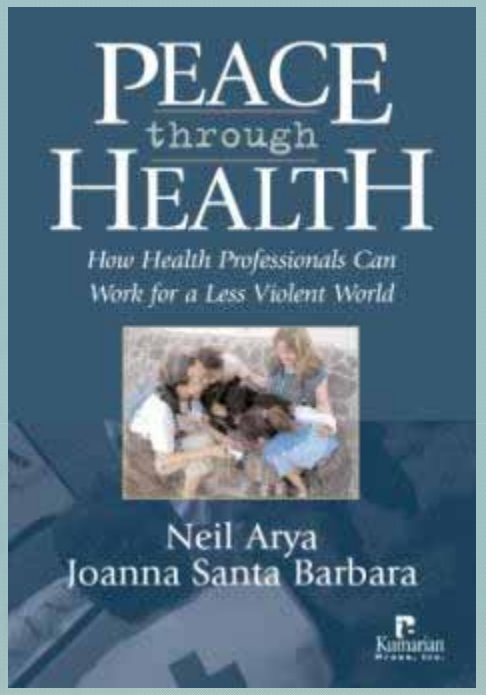
  neil.arya@schulich.uwo.ca
- www.fes.uwaterloo.ca/ers/faculty/narya.htm
- www.schulich.uwo.ca/globalhealth

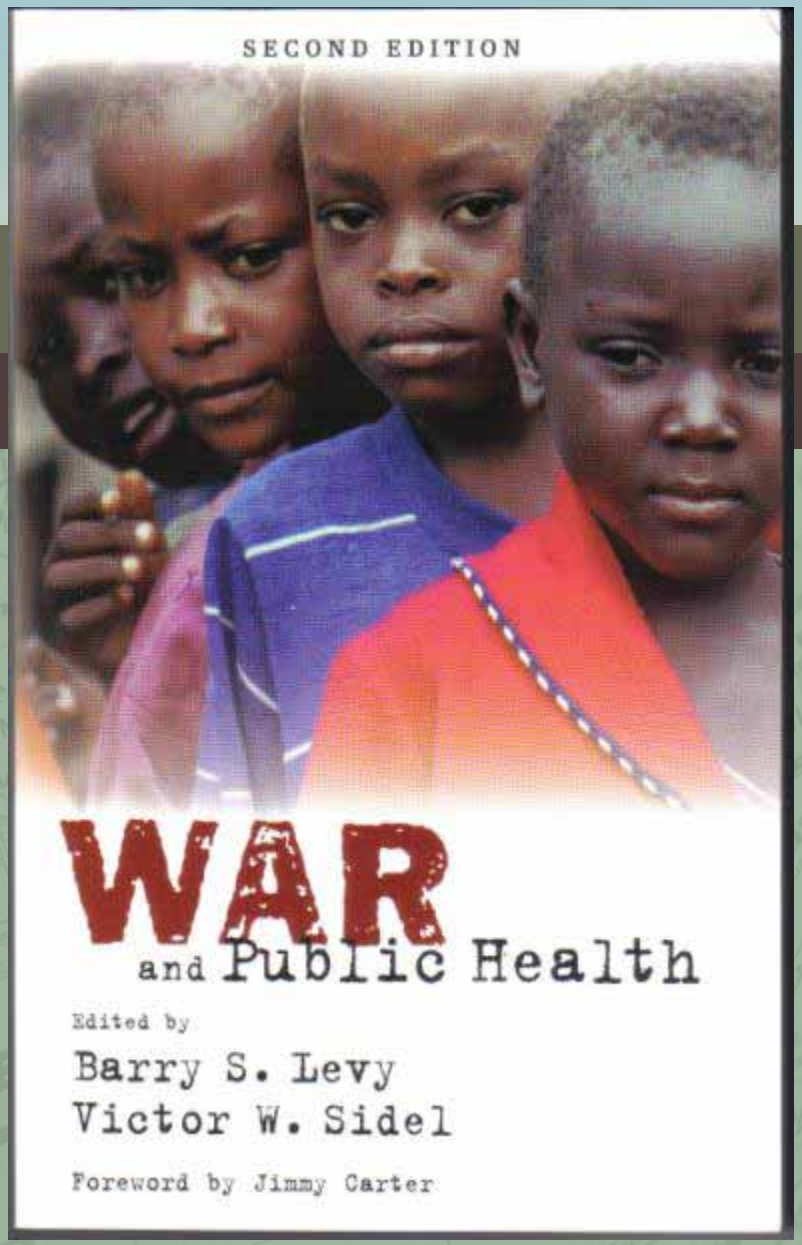


What is Peace Through Health?

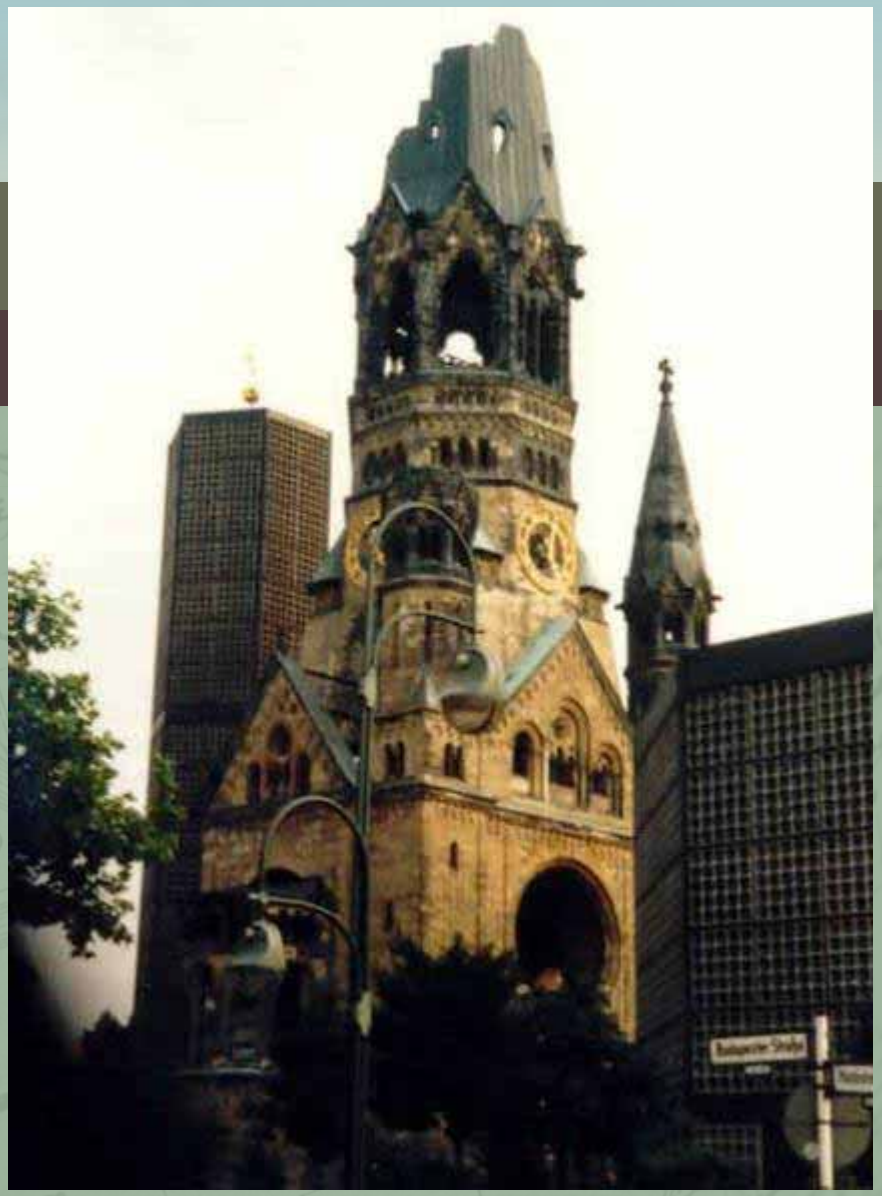
" An emerging academic discipline to study how health interventions in actual and potential war zones may contribute to peace. "

- McMaster Peace through Health Website

War and Public Health



Gedaechtnis Kirche, Berlin



East Berlin, 1987

Downtown Belgrade, 2000

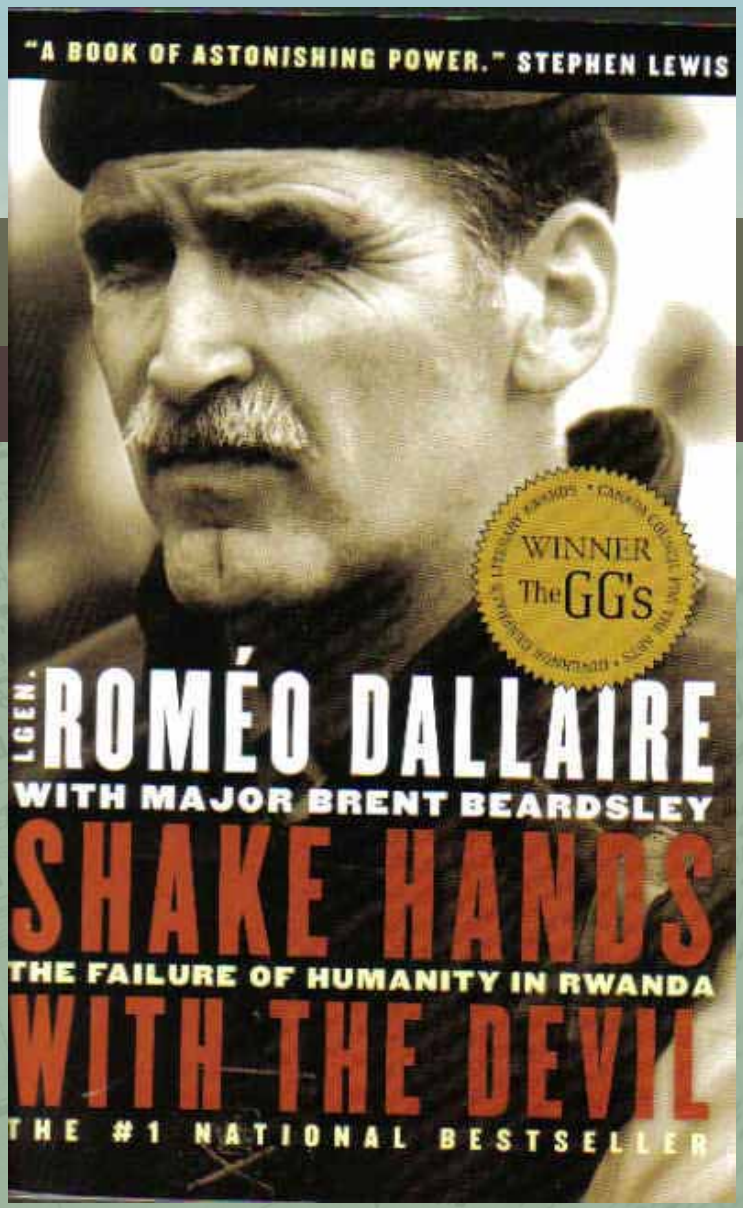
Belgrade Infrastructure

Novi Sad Infrastructure

Kosovar Refugees

BBC, 1999

General Roméo Dallaire



Genocide in Rwanda

BBC, 2001

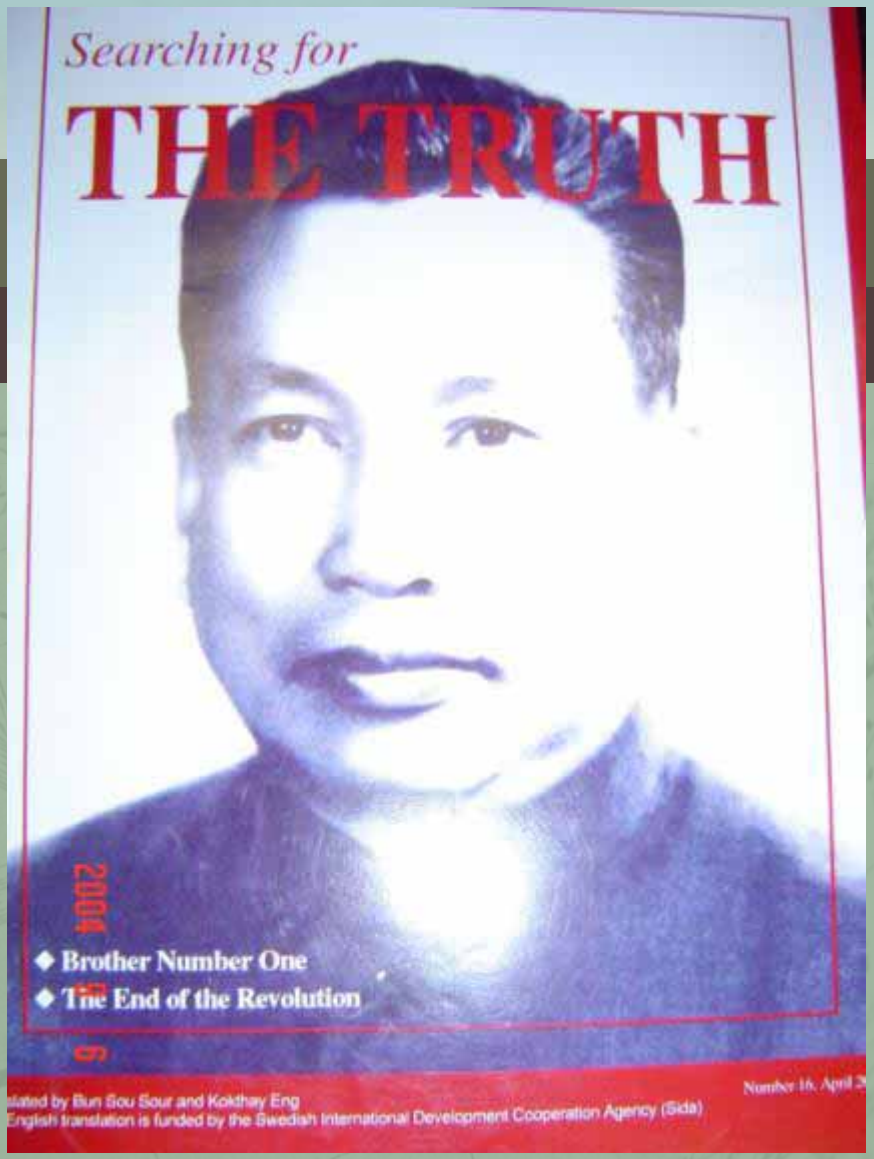
Ethnic Massacre in Burundi

Bujumbura, Burundi
1996 ethnic massacre

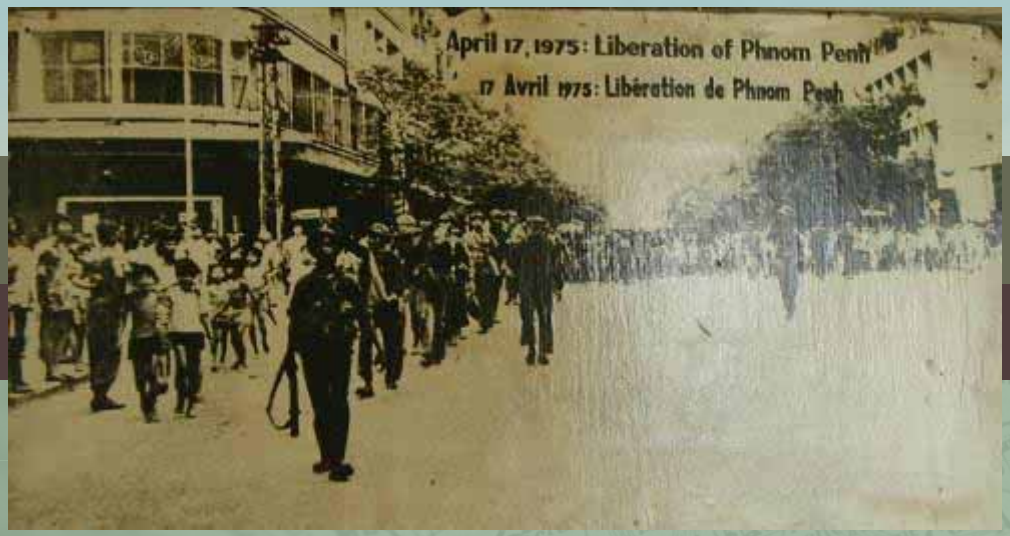
Angkor Wat, Cambodia

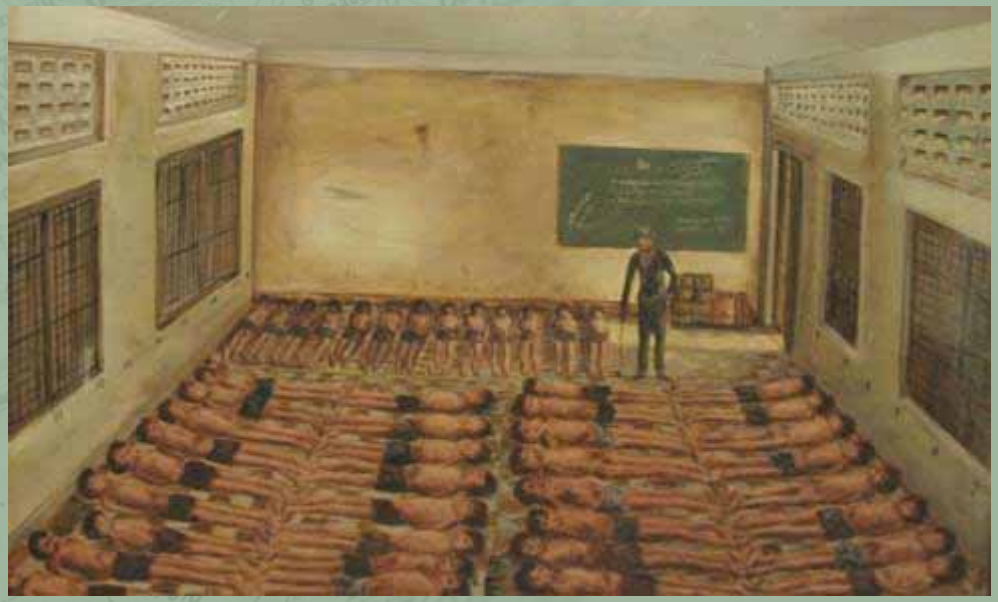
Cambodia, 2004

Pol Pot

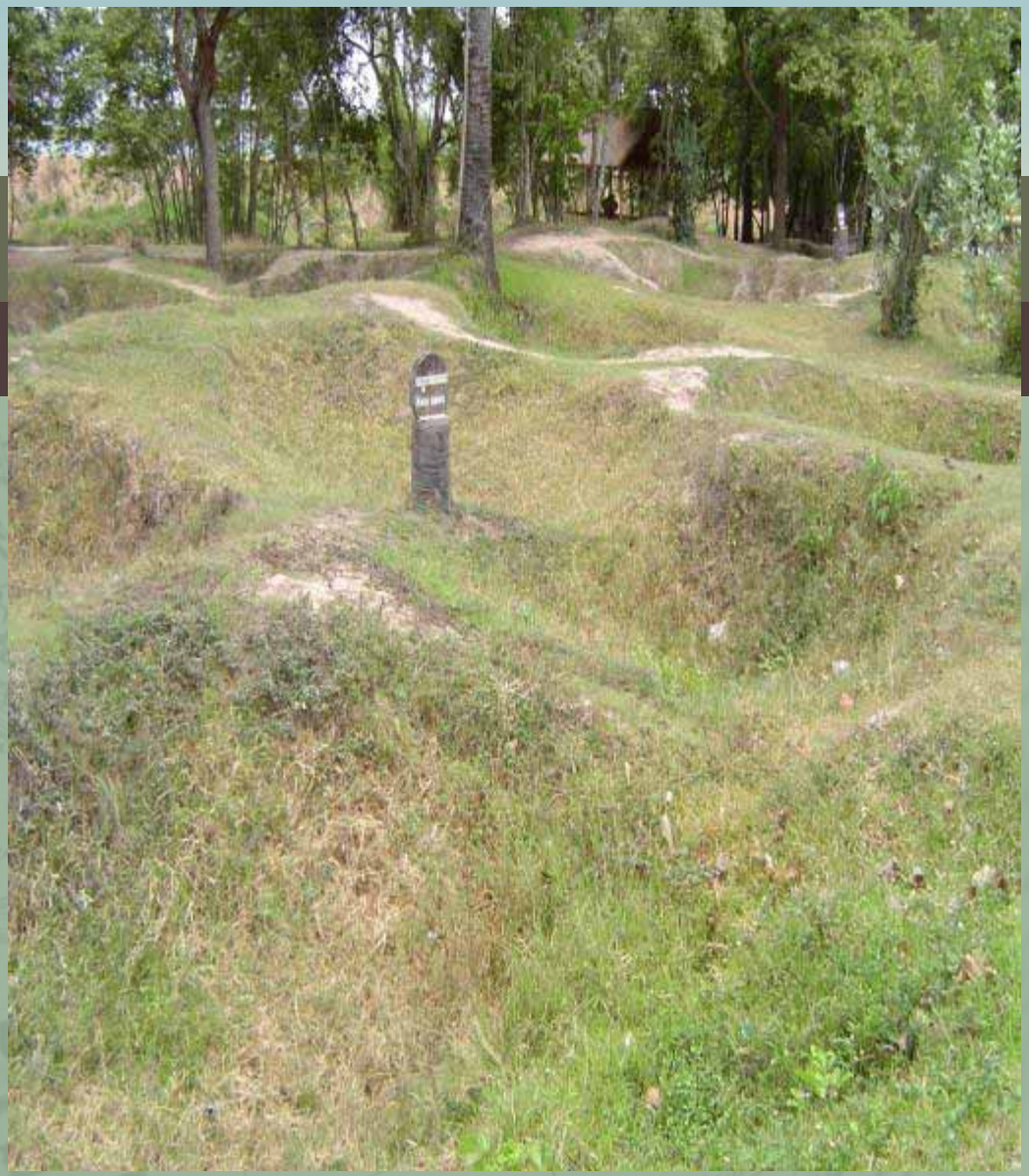

Searching for
THE TRUTH
2004
◆ Brother Number One
◆ The End of the Revolution
Number 16, April
lated by Bun Sou Sour and Kokthay Eng
English translation is funded by the Swedish International Development Cooperation Agency (Sida)

Khmer Rouge Activity





The Killing Fields



The Killing Fields

Land Destruction - Vietnam

Before...

Agent Orange Files

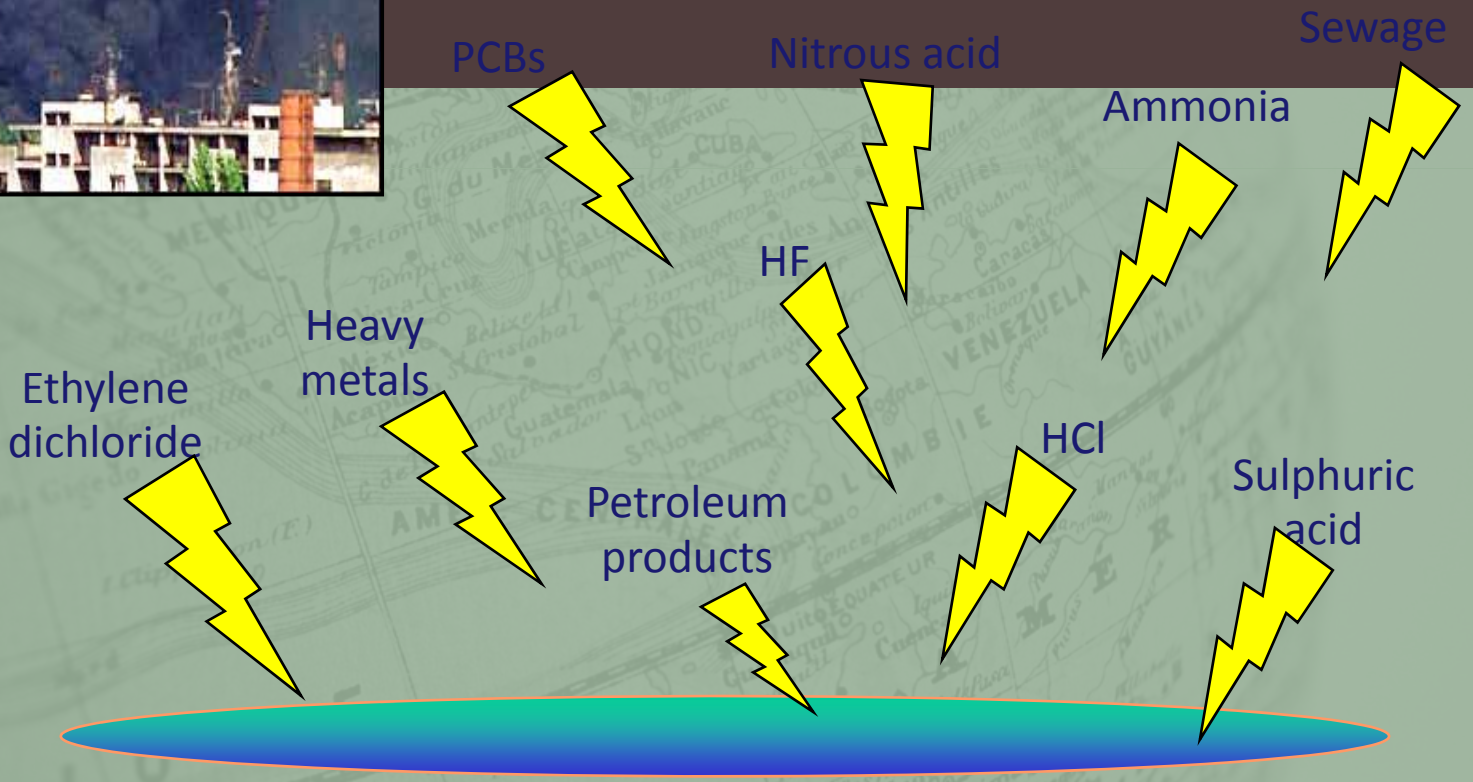
Land Destruction - Vietnam

...and after

Agent Orange Files

Arthur H. Westing, 1971

Water Contamination - Former Yugoslavia



Air Pollution - Gulf War

Guernica

Guernica by Pablo Picasso, 1937, Museo Reina Sofia, Madrid.

Collage credit: McMaster Medical students, together with WarChild and Mines Action Canada

Diseases Estimated to Cause Most Loss of Healthy Life Years (DALYs) in 2002

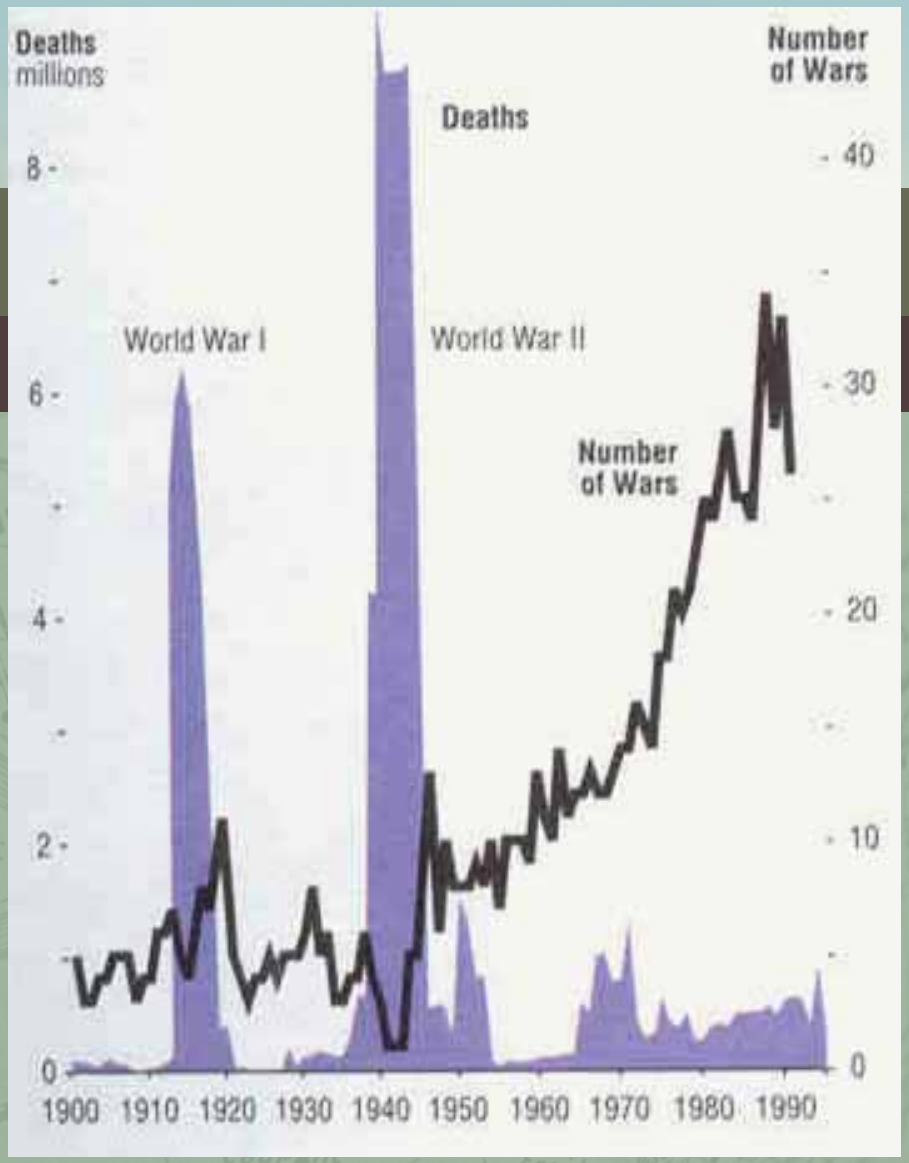
Disease or Disease Groups		% of Total DALYs Lost	Millions of Healthy Life Years Lost (DALY)	Millions of Deaths
1.	Perinatal disorders	6%	97	2.5
2.	Lower respiratory infection	6%	91	3.9
3.	HIV/AIDS	6%	84	2.8
4.	Unipolar major depression	4%	67	0.0
5.	Diarrhoeal diseases	4%	62	1.8
6.	Ischemic heart disease	4%	59	7.2
7.	Cerebrovascular diseases	3%	49	5.5
8.	Malaria	3%	46	1.3
9.	Road-traffic accidents	3%	39	1.2
10.	Tuberculosis	3%	36	1.6
11.	Maternal disorders	2%	34	0.5
12.	Chronic obstructive pulmonary diseases	2%	28	2.7
13.	Congenital anomalies	2%	27	0.5
14.	Measles	1%	21	0.6
15.	Violence	1%	21	0.5
16.	Self inflicted injuries	1%	21	0.9
17.	Alcohol use disorders	1%	20	0.1
18.	Protein energy malnutrition	1%	17	0.3
19.	Falls	1%	16	0.4

Source: World Health Report, WHO (2004)

Impact

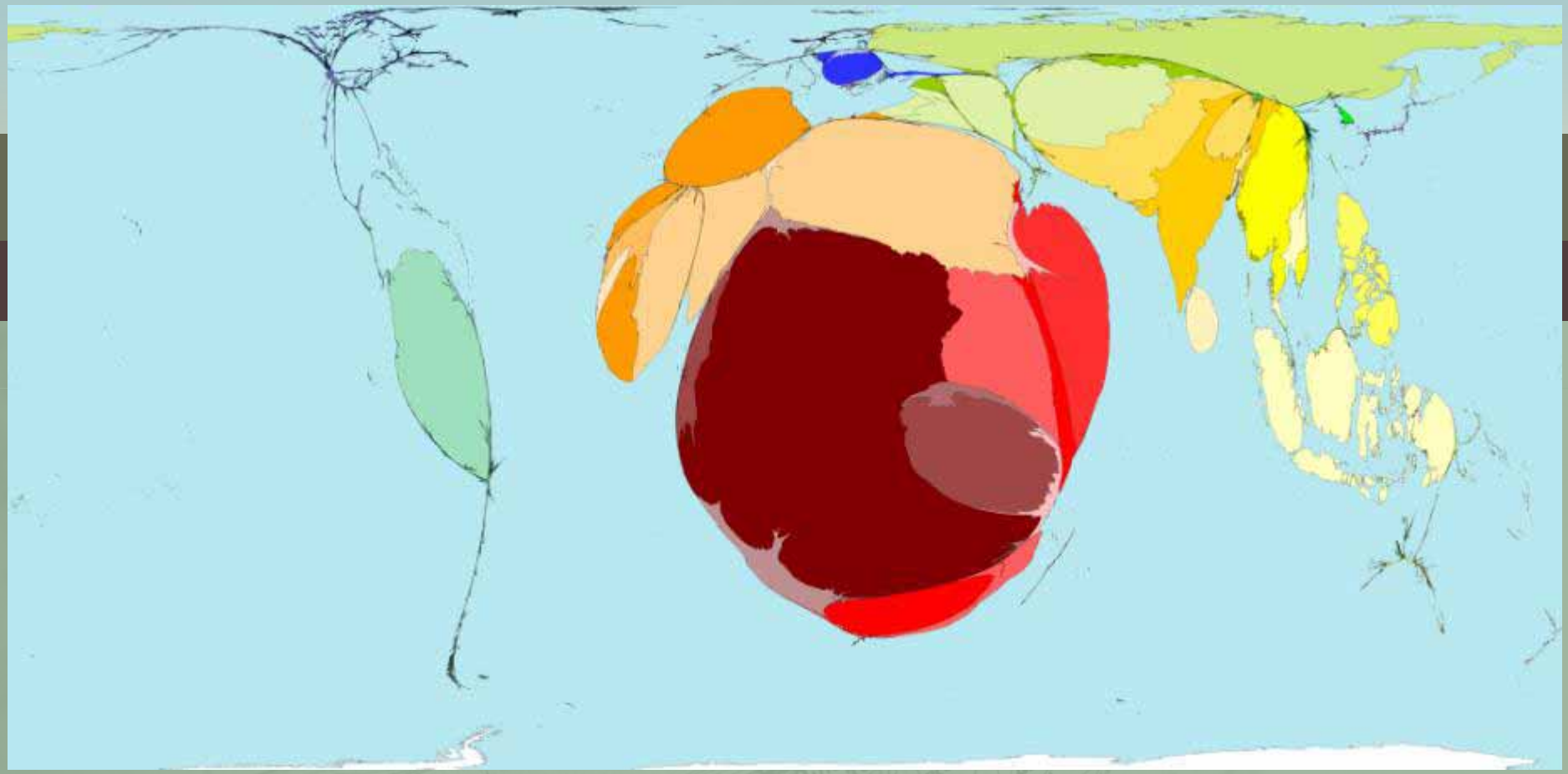
- ***By 2020 the World Health Organization and the World Bank predict that war will be the 8th leading cause of disability and death. (Murray and Lopez 1996)***

Wars and War-Deaths in the 20th Century



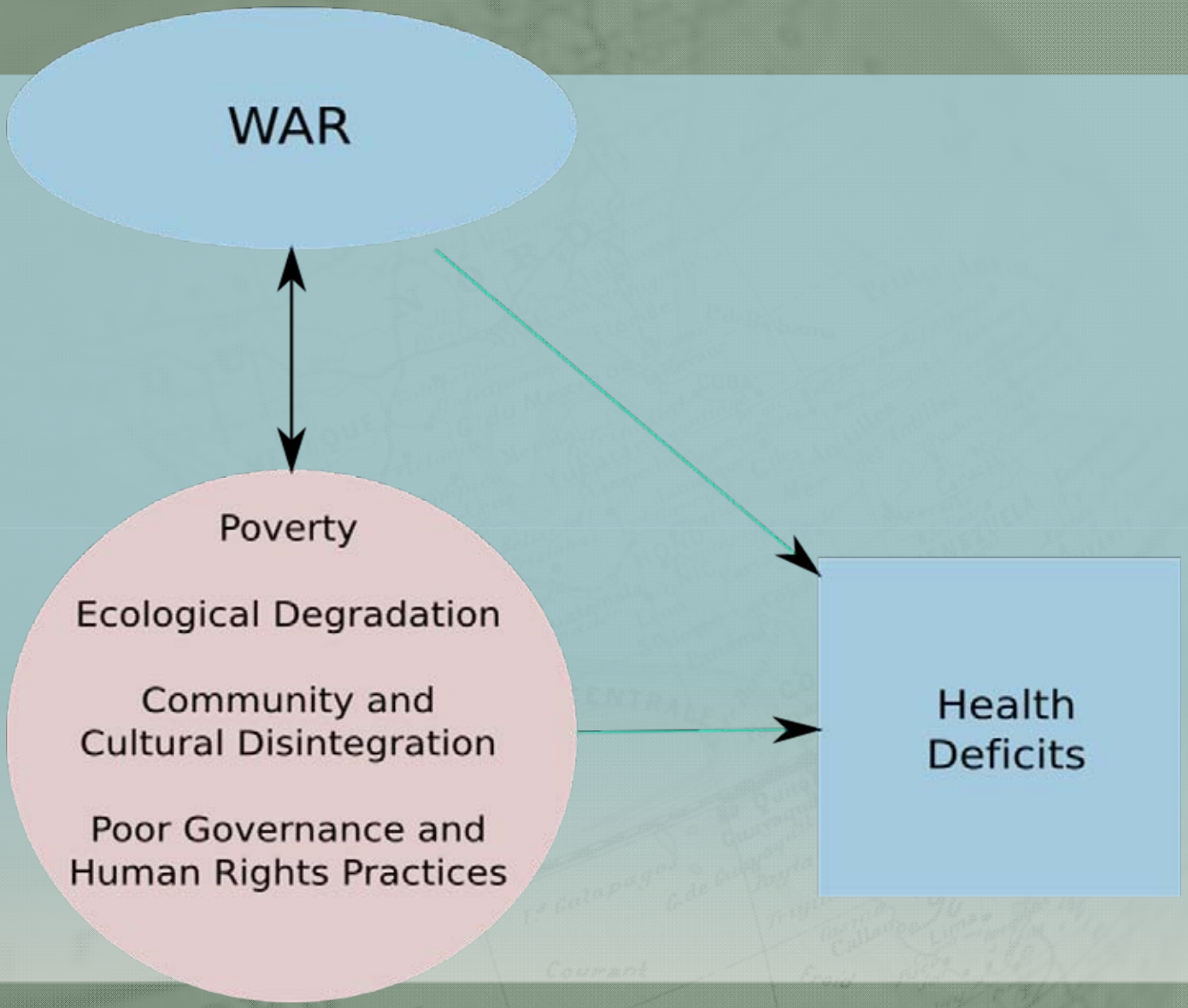
Source: World Military and Social Expenditures

War Deaths, 2002



Impact of War on Health

The Illness - War Connection



Stages of War

Yusuf et al. (1998) describe how war may be viewed as analogous to a disease;

- War has risk factors and may allow preventive manoeuvres or interventions during pre-war, during and post-war stages at the primordial, primary, secondary and tertiary stages paralleling a medical model of prevention, treatment and rehabilitation.

Stages of War

Primary prevention:

- Modification of risk factors and prevents war from breaking out when a situation of conflict already exists, or from escalating to more dangerous levels.
- 'Peacekeeping', limitation of arms, combating propaganda and diplomacy are examples.

Stages of War

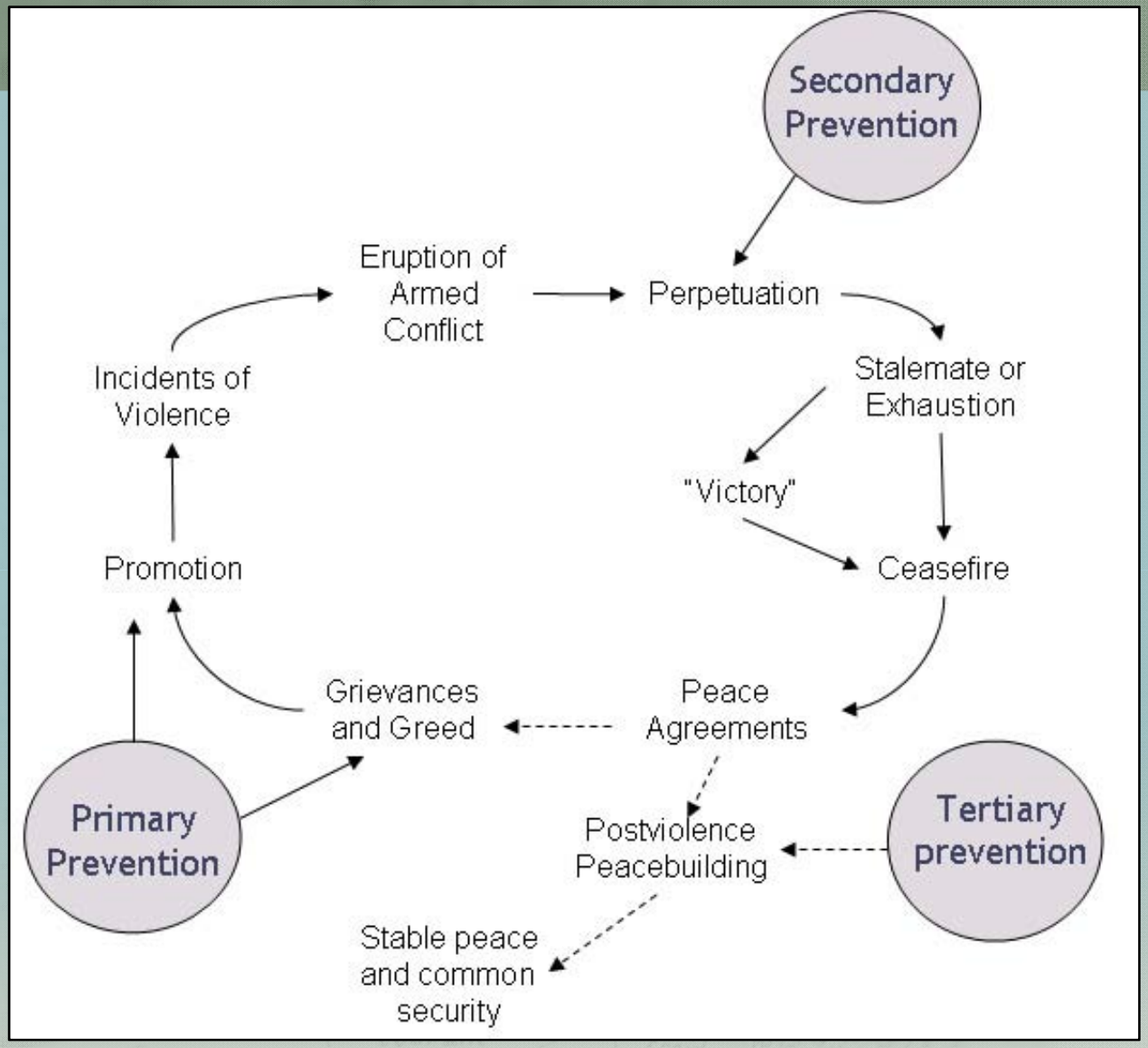
Secondary prevention:

- War has already broken out (the disease has manifested itself) where the effects of war can be treated.
- 'Peacemaking' effort required.

Tertiary prevention:

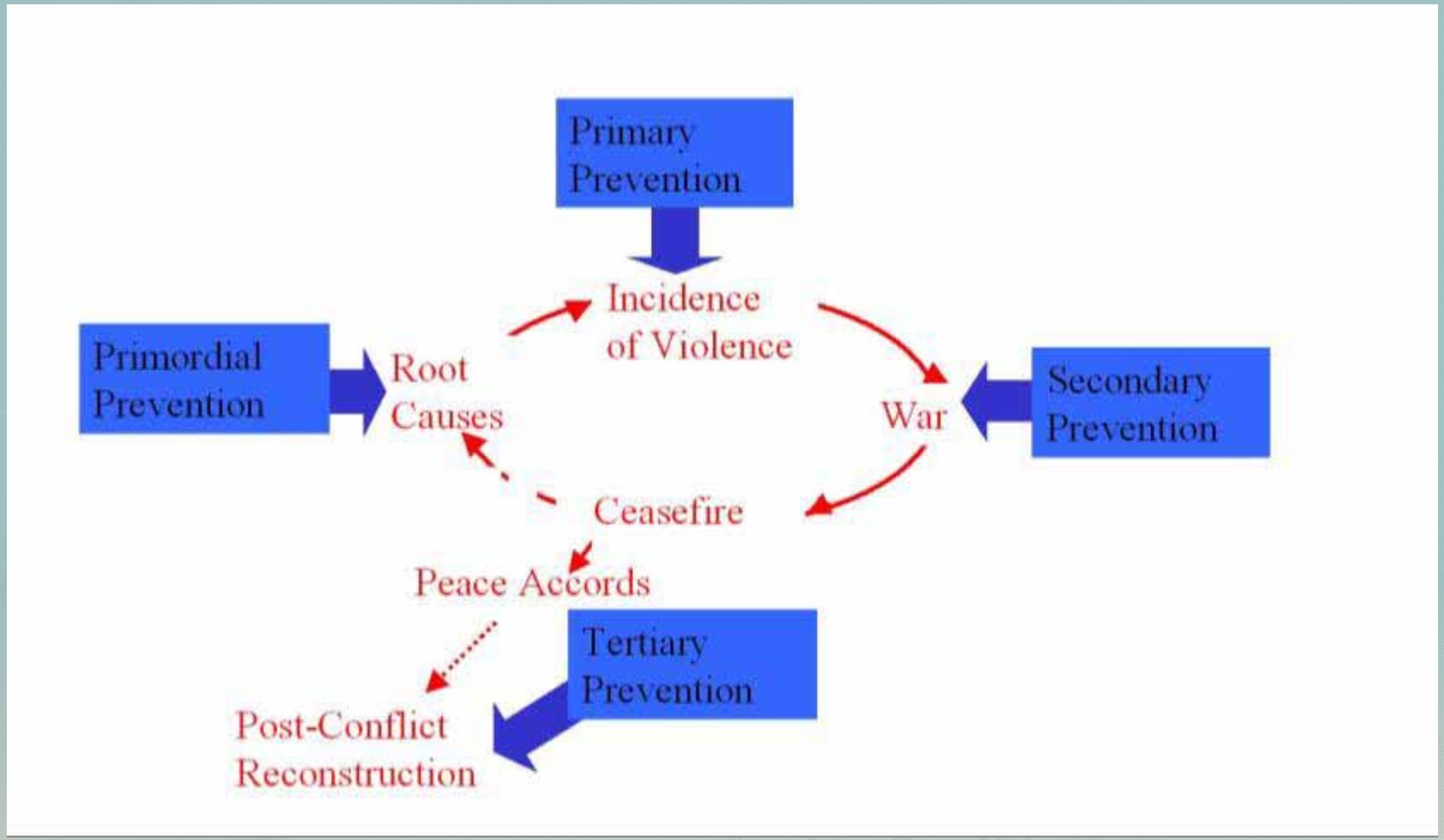
- analogous to rehabilitation in medicine and ecological restoration for environmentalists, would be post 'hot' war 'peace-building'.

Cycle of Violence

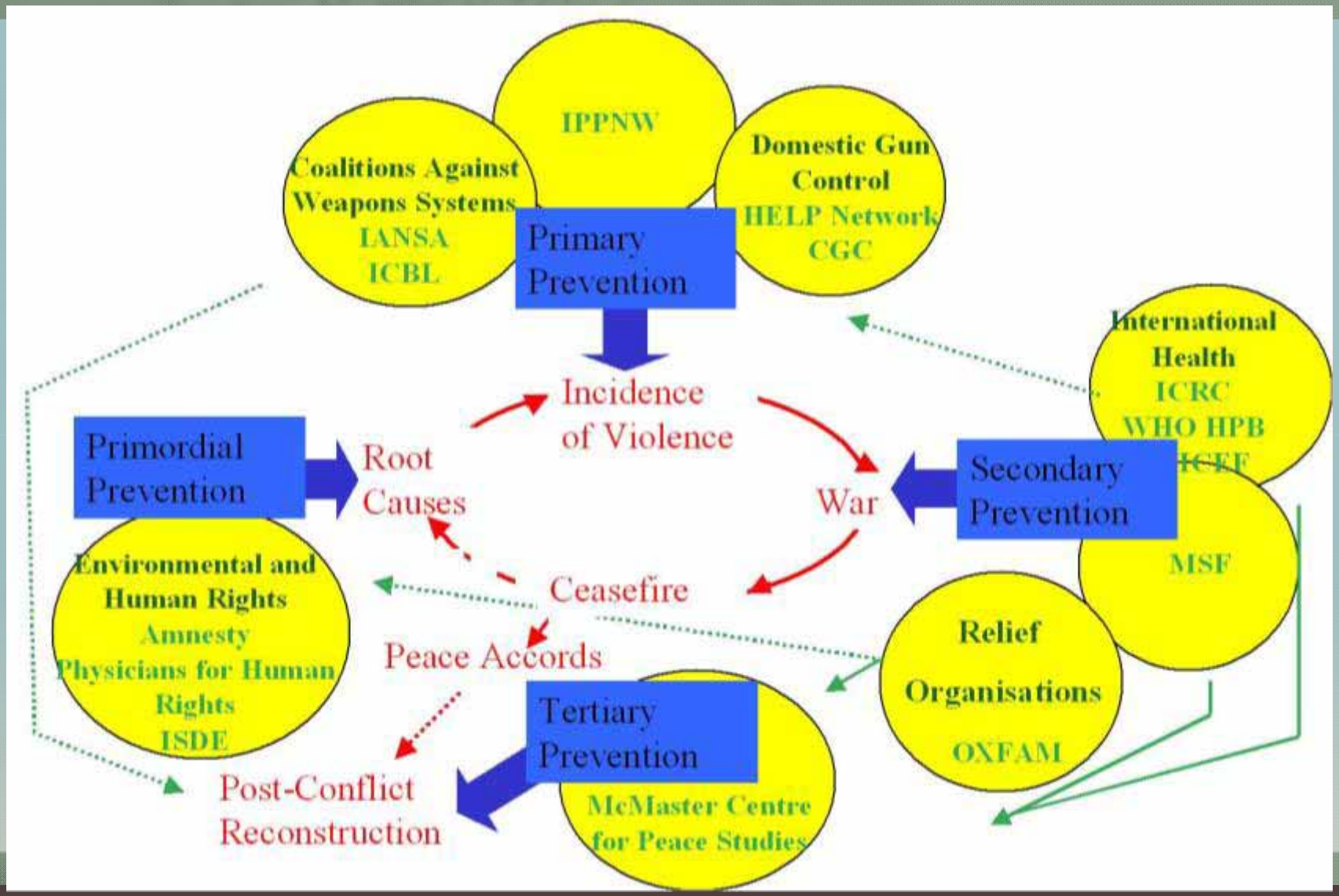


Joanna Santa Barbara

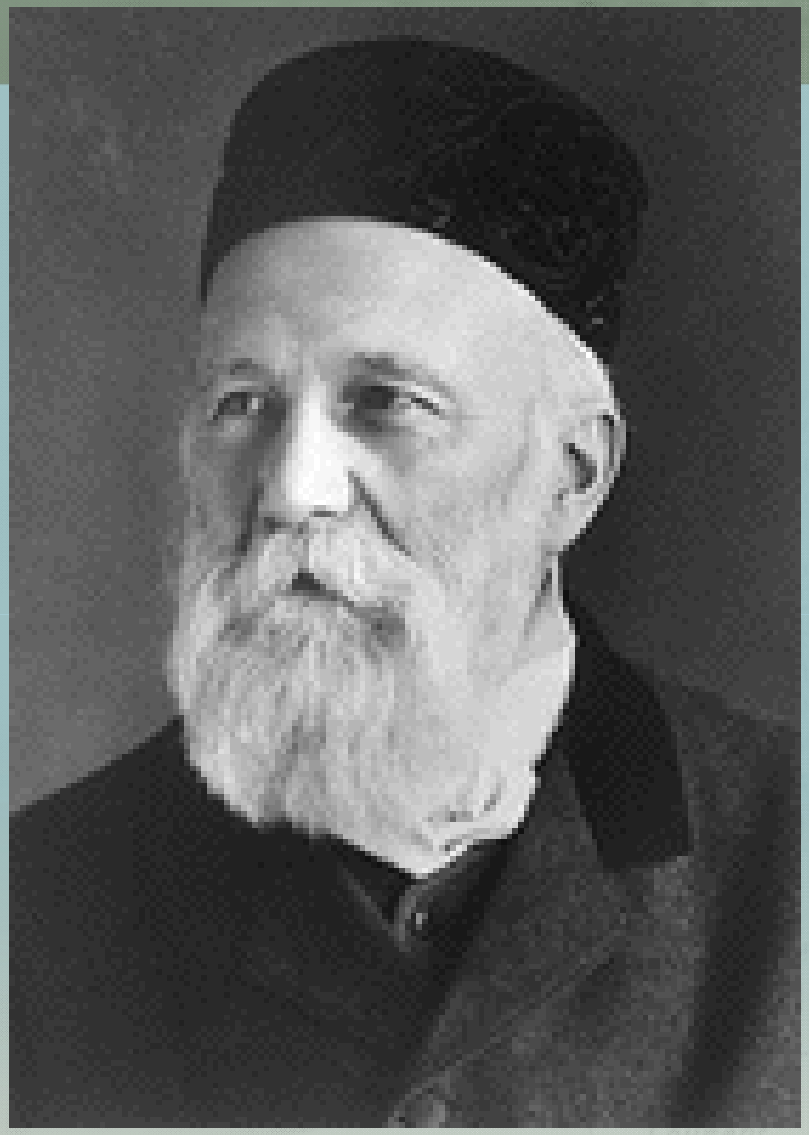
Breaking the Chain of War:
Medical Peace Action in a Framework of Prevention



Breaking the Chain of War:
Medical Peace Action in a Framework of Prevention

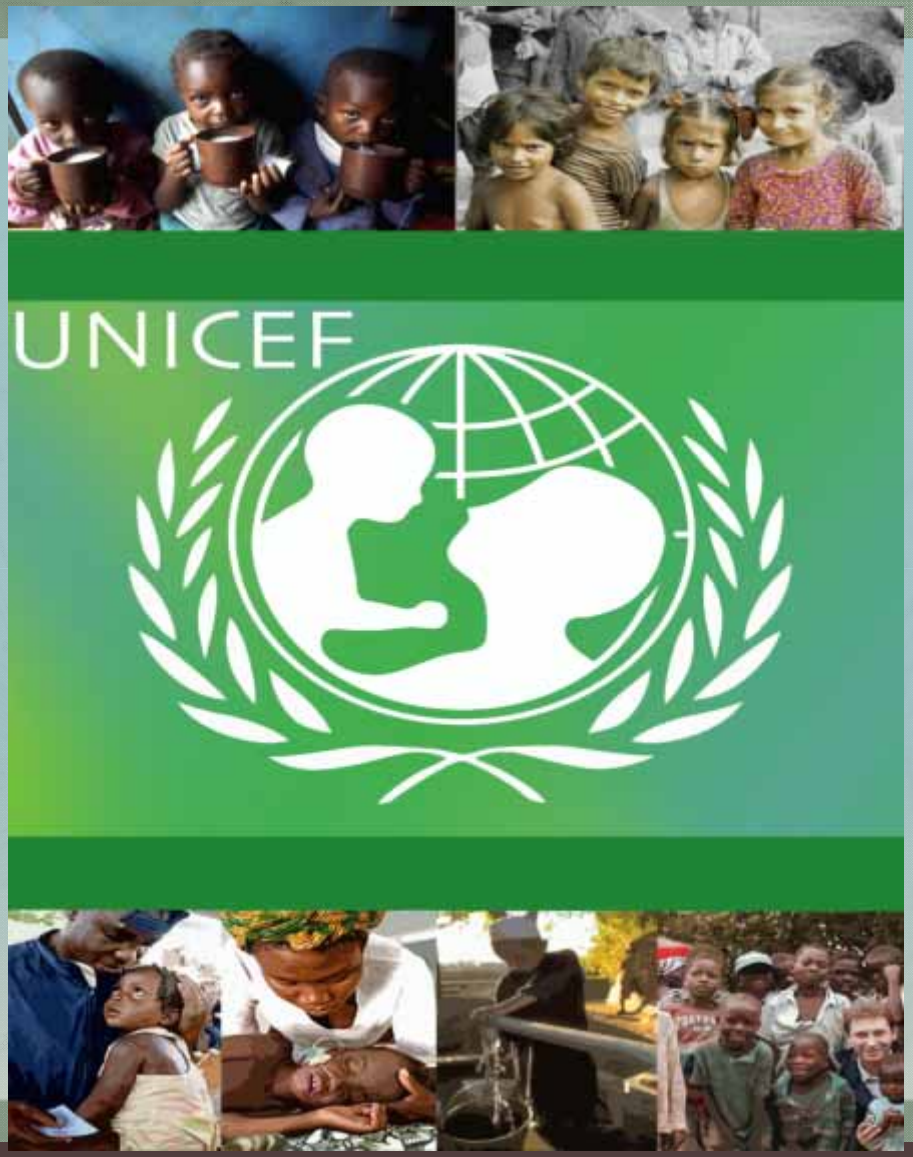


Henri Dunant



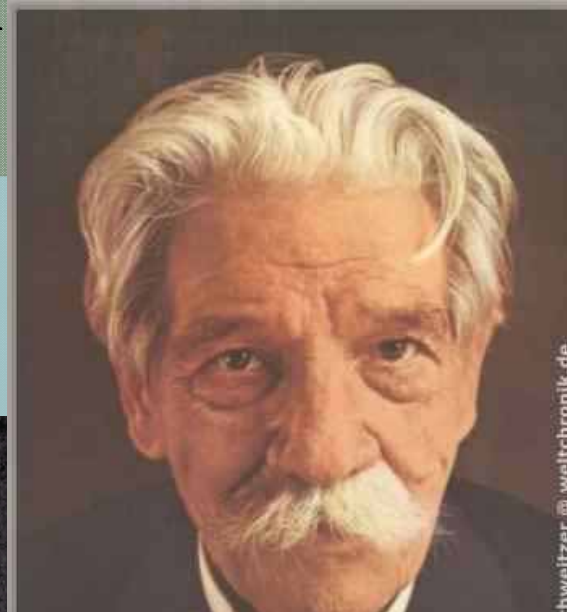
- Founder of Red Cross

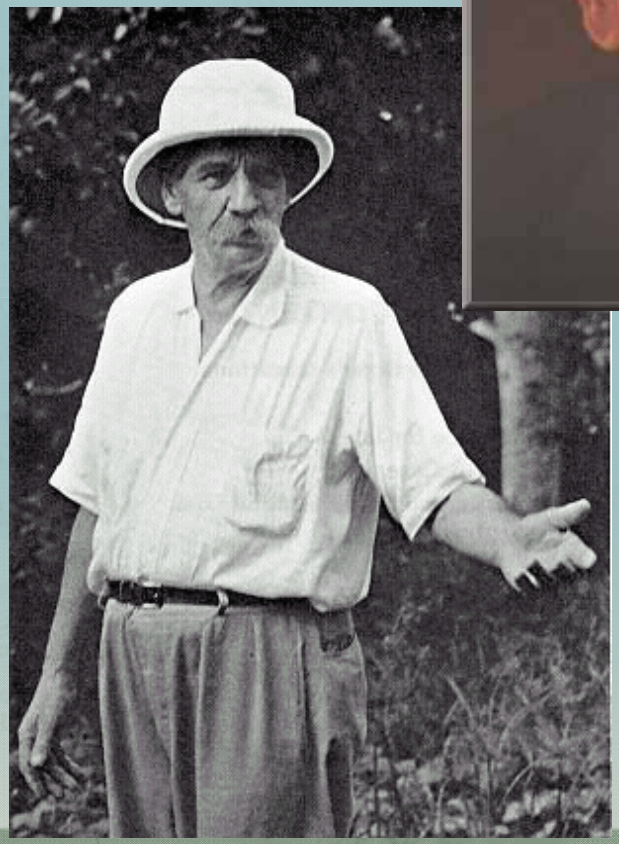
Humanitarian Ceasefires



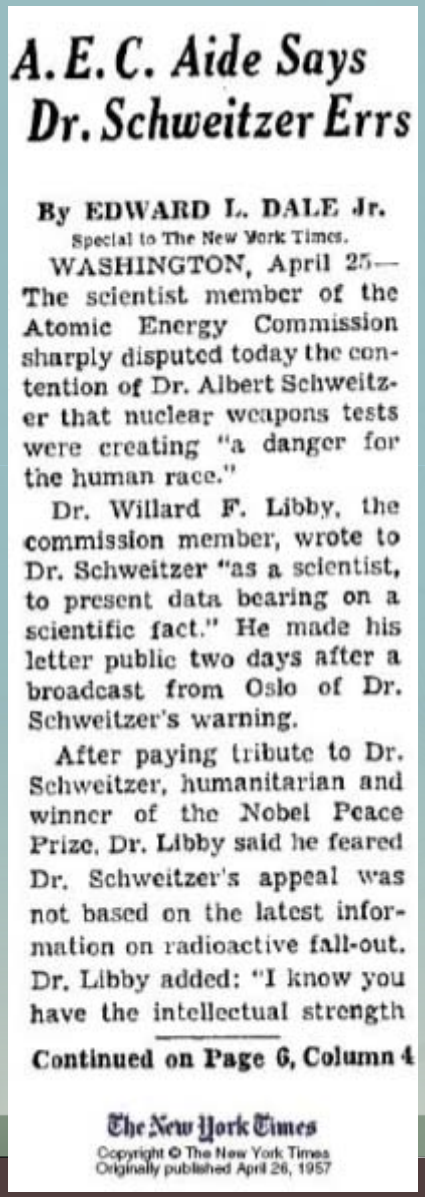
Schweitzer on Nuclear Weapons
NY Times Apr. 24, 1957

- Addressed to Nobel Peace Prize Committee
- Called for end to above ground nuclear tests
- Fallout dangers
- Vulnerable future generations
- Broadcast in 50 countries (not the US)
- Meant to awaken Public opinion





NY Times April 25, 1957 (NRC)



A. E. C. Aide Says Dr. Schweitzer Errs

By EDWARD L. DALE Jr.
Special to The New York Times.

WASHINGTON, April 25— The scientist member of the Atomic Energy Commission sharply disputed today the contention of Dr. Albert Schweitzer that nuclear weapons tests were creating "a danger for the human race."

Dr. Willard F. Libby, the commission member, wrote to Dr. Schweitzer "as a scientist, to present data bearing on a scientific fact." He made his letter public two days after a broadcast from Oslo of Dr. Schweitzer's warning.

After paying tribute to Dr. Schweitzer, humanitarian and winner of the Nobel Peace Prize, Dr. Libby said he feared Dr. Schweitzer's appeal was not based on the latest information on radioactive fall-out. Dr. Libby added: "I know you have the intellectual strength

Continued on Page 6, Column 4

- Scientist, William Libby, member of NRC says Schweitzer errs
- Radiation much safer than 1930s, far less than natural radiation soil altitude
- Strontium 90 not a problem; like moving a few hundred feet up a hill
- Less than 1% of permissible concentrations
- Fallout small in comparison to other risks
- Brick or concrete vs. wooden house
- 1-5/1000 Roentgen vs. 150 background

Schweitzer's Message

- Trust Credibility Nobel
- Dangers of Nuclear weapons and testing
- Medically and Morally Unacceptable
- Conflicted with 'Experts' Governments, Militaries
- Redefinition of Situation

INTERNATIONAL PHYSICIANS FOR THE PREVENTION OF NUCLEAR WAR

IPPNW

- Doctors, medical students, health care professionals, and concerned citizens working to ban nuclear weapons and address the impact of militarism and war on health.

- 1985 Nobel Peace Prize

IPPNW History

- 1962, Drs. Victor Sidel H., Jack Geiger, and Bernard Lown produce first major medical journal article on the medical consequences of nuclear war
- Published in the prestigious New England Journal of Medicine

The New England Journal of Medicine

Established in 1812 as The NEW ENGLAND JOURNAL OF MEDICINE AND SURGERY

VOLUME 266 MAY 31, 1962 NUMBER 22

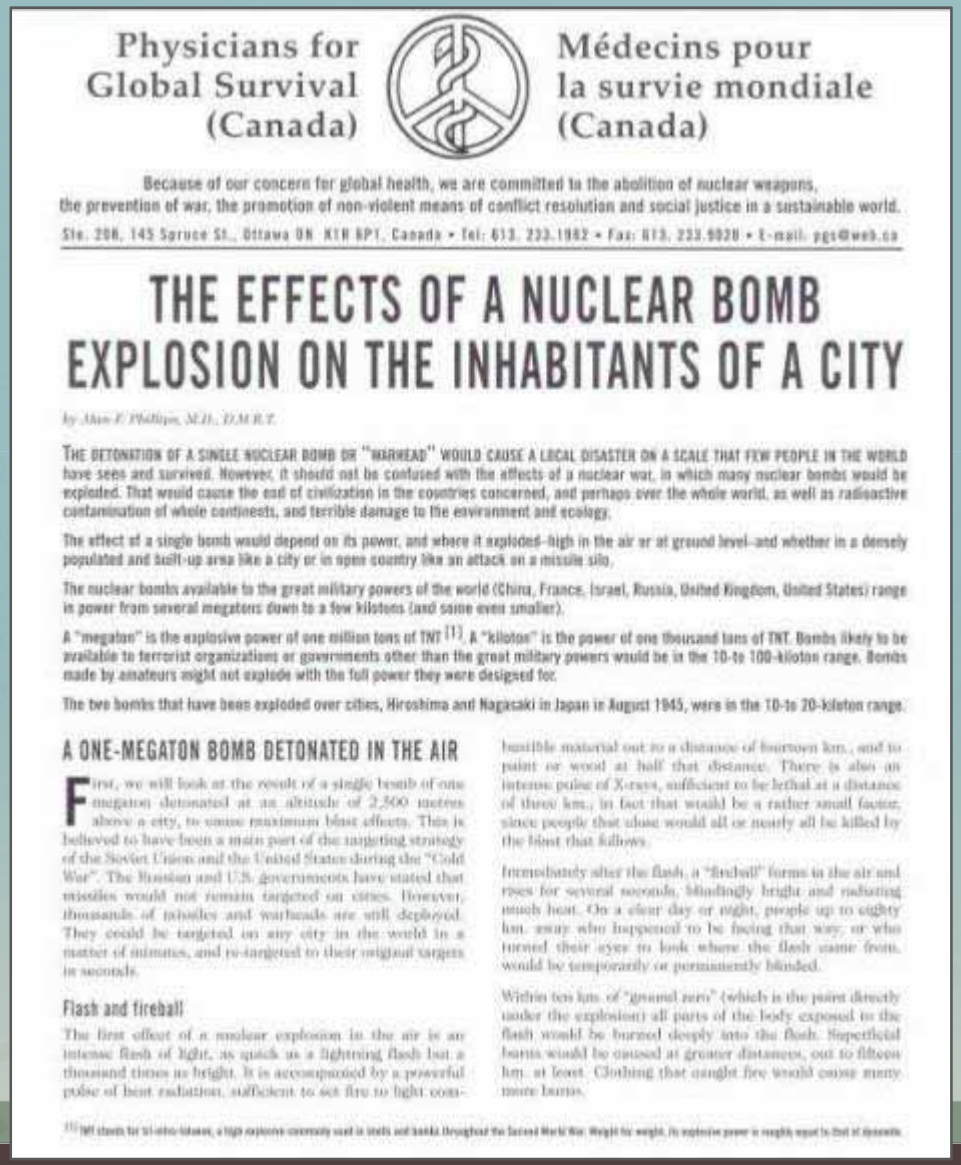
Owned and Published by The Massachusetts Medical Society

Medical Needs, Medical Limitations

- **Burns, eyes**
- **Pressure: lungs, bones, shards**
- **Radiation sickness**
- **Infection, pain**
- **Shortage of water, electricity**

- **70% of MD's dead**
- **One doctor per 1500 seriously injured patients**

Effects of Nuclear Strikes on Cities



Physicians for Global Survival (Canada)

Médecins pour la survie mondiale (Canada)

Because of our concern for global health, we are committed to the abolition of nuclear weapons, the prevention of war, the promotion of non-violent means of conflict resolution and social justice in a sustainable world.

Ste. 206, 145 Spruce St., Ottawa ON K1R 6P1, Canada • Tel: 613. 233.1982 • Fax: 613. 233.9020 • E-mail: pgs@web.ca

THE EFFECTS OF A NUCLEAR BOMB EXPLOSION ON THE INHABITANTS OF A CITY

by Alan E. Phillips, M.D., D.M.R.T.

THE DETONATION OF A SINGLE NUCLEAR BOMB OR "WARHEAD" WOULD CAUSE A LOCAL DISASTER ON A SCALE THAT FEW PEOPLE IN THE WORLD have seen and survived. However, it should not be confused with the effects of a nuclear war, in which many nuclear bombs would be exploded. That would cause the end of civilization in the countries concerned, and perhaps over the whole world, as well as radioactive contamination of whole continents, and terrible damage to the environment and ecology.

The effect of a single bomb would depend on its power, and where it explodes–high in the air or at ground level–and whether in a densely populated and built-up area like a city or in open country like an attack on a missile silo.

The nuclear bombs available to the great military powers of the world (China, France, Israel, Russia, United Kingdom, United States) range in power from several megatons down to a few kilotons (and some even smaller).

A "megaton" is the explosive power of one million tons of TNT.[1] A "kiloton" is the power of one thousand tons of TNT. Bombs likely to be available to terrorist organizations or governments other than the great military powers would be in the 10-to 100-kiloton range. Bombs made by amateurs might not explode with the full power they were designed for.

The two bombs that have been exploded over cities, Hiroshima and Nagasaki in Japan in August 1945, were in the 10-to 20-kiloton range.

A ONE-MEGATON BOMB DETONATED IN THE AIR

First, we will look at the result of a single bomb of one megaton detonated at an altitude of 2,500 metres above a city, to cause maximum blast effects. This is believed to have been a main part of the targeting strategy of the Soviet Union and the United States during the "Cold War". The Russian and U.S. governments have stated that missiles would not remain targeted on cities. However, thousands of missiles and warheads are still deployed. They could be targeted on any city in the world in a matter of minutes, and re-targeted to their original targets in seconds.

Flash and fireball

The first effect of a nuclear explosion in the air is an intense flash of light, as quick as a lightning flash but a thousand times as bright. It is accompanied by a powerful pulse of heat radiation, sufficient to set fire to light combustible material out to a distance of fourteen km., and to paint or wood at half that distance. There is also an intense pulse of X-rays, sufficient to be lethal at a distance of three km.; in fact that would be a rather small factor, since people that close would all or nearly all be killed by the blast that follows.

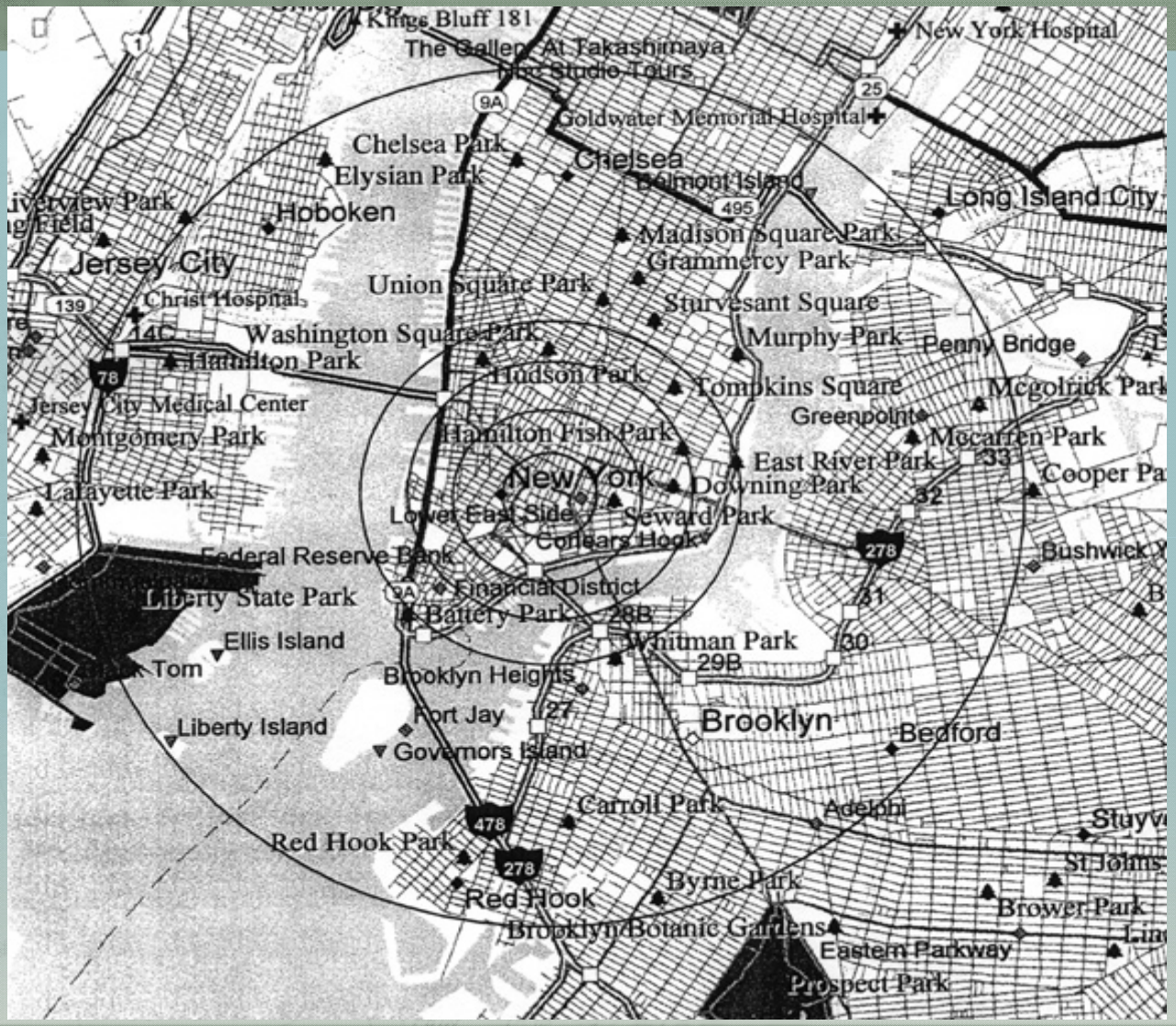
Immediately after the flash, a "fireball" forms in the air and rises for several seconds, blindingly bright and radiating much heat. On a clear day or night, people up to eighty km. away who happened to be facing that way, or who turned their eyes to look where the flash came from, would be temporarily or permanently blinded.

Within ten km. of "ground zero" (which is the point directly under the explosion) all parts of the body exposed to the flash would be burned deeply into the flesh. Superficial burns would be caused at greater distances, out to fifteen km. at least. Clothing that caught fire would cause many more burns.

[1] TNT stands for tri-nitro-toluene, a high explosive commonly used in shells and bombs throughout the Second World War. Weight for weight, its explosive power is roughly equal to that of dynamite.

Deaths from Small Bomb on New York

- Band A is the innermost circle and represents ground zero where 98% of population is killed immediately
- Next slide shows percentages of deaths in each circle, moving outward from ground zero



Deaths: Small Atomic Bomb

Band (in to out)	Distance from Ground Zero	Fatality Rate	Total Deaths
A	0.0-0.5 km (0.0-.31 mile)	98%	6,471
B	0.5-1.0 km (.31-.62 mile)	90%	17,086
C	1.0-1.5 km (.62-.93 mile)	46%	15,188
D	1.5-2.0 km (.93-1.24 mile)	23%	10,441
E	2.0-5.0 km (1.24-3.1 mile)	2%	10,879
Total	0.0-5.0 km (0.0-3.1 mile)	9%	60,065

IPPNW Core Message

- In the event of a nuclear attack, don't bother to call your doctor!
  - The 98% of medical personnel who live and work in the centre of cities would be dead
  - Gave lie to the claim that there could be a meaningful medical response to such an attack
- Nuclear war was therefore 'unwinnable' by any side, should never be fought, nor contemplated nor prepared for, but only prevented by abolition
- Nuclear war moved from the realm of the military and political to a public health problem

Global Health Alert

Mikhail Gorbachev

The International Physicians for the Prevention of Nuclear War has come to exercise a tremendous influence on world opinion in quite a short period of time. . . . For what they say and what they do is prompted by accurate knowledge and a passionate desire to warn humanity about the danger looming over it.
In the light of their arguments and the strictly scientific data which they possess no serious politician has the right to disregard their conclusions.
Perestroika (1987)

Nobel Peace Summit

Gorbachev


2004 11 12

Hibakusha: Survivors of Hiroshima

IPPNW Medical Students

Target X

Reasons to Be Fearful

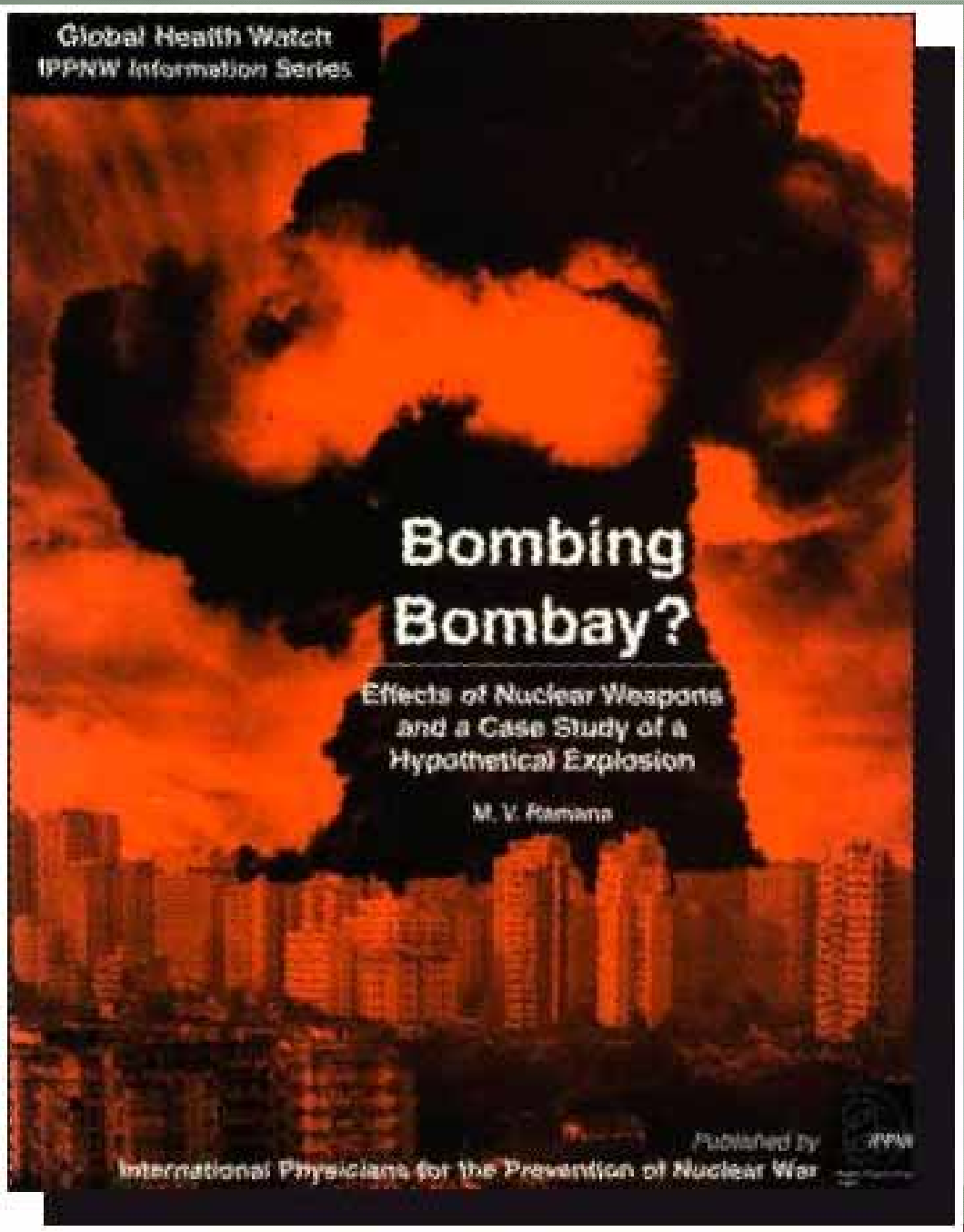
- Charles Krauthammer's argument for invading Iraq in "The Terrible Logic of Nukes" [Essay, Sept. 2] is just that: terrible logic. Iraq wants nuclear weapons to balance Israel's, which built them to balance Arab conventional superiority. Pakistan wanted to balance India, which had to balance China, which had to balance Russia, which had to balance the U.S. and its allies, which had to balance Russia's presumed European-theatre superiority. Throughout this balancing act, the world has been no more than 30 minutes away from Armageddon. The only logical way to keep nuclear weapons out of the hands of madmen is to renounce them ourselves.

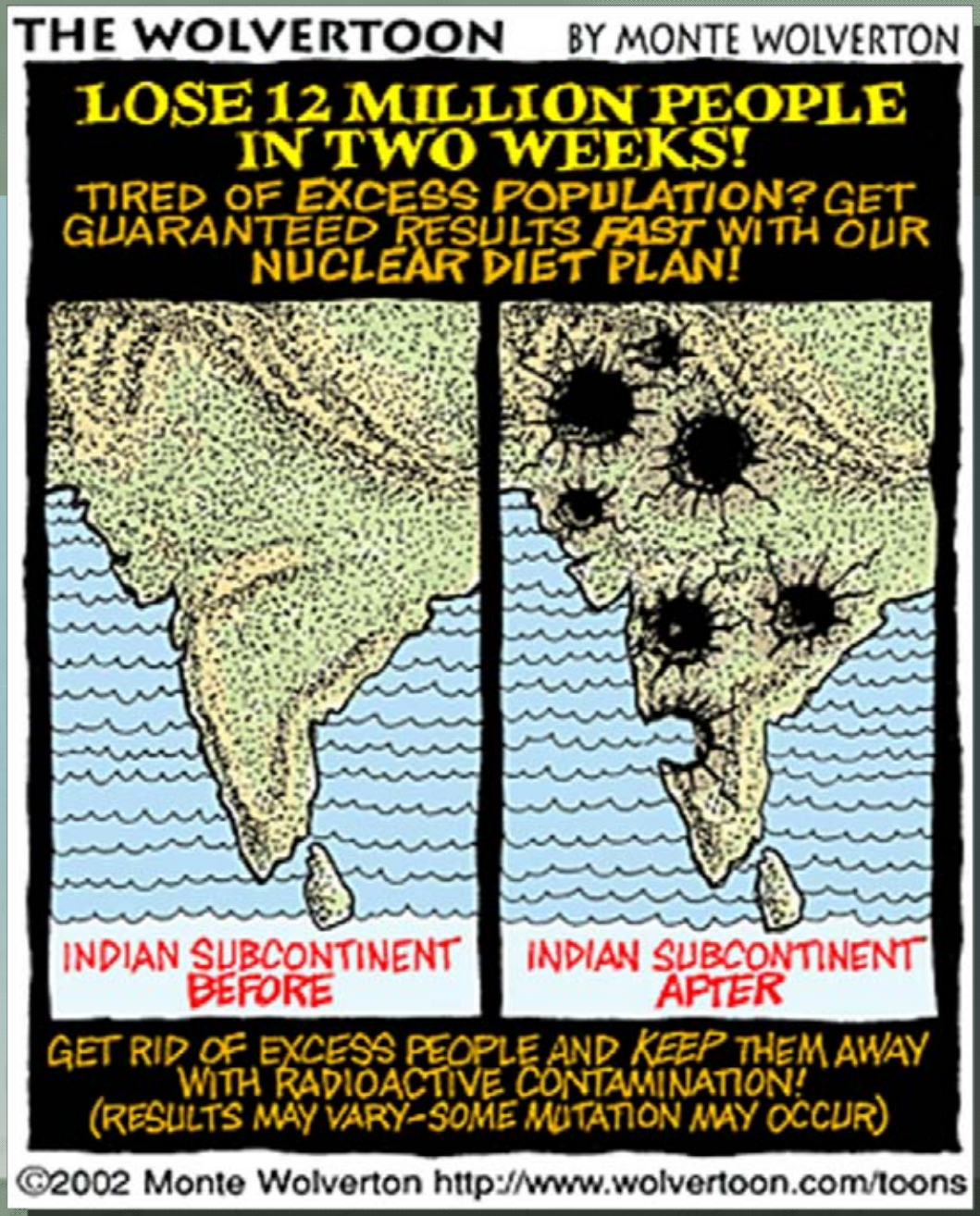
- NEIL ARYA, M.D.
International Physicians for the Prevention of Nuclear War, Waterloo, ON

TIME Magazine: September 23, 2002

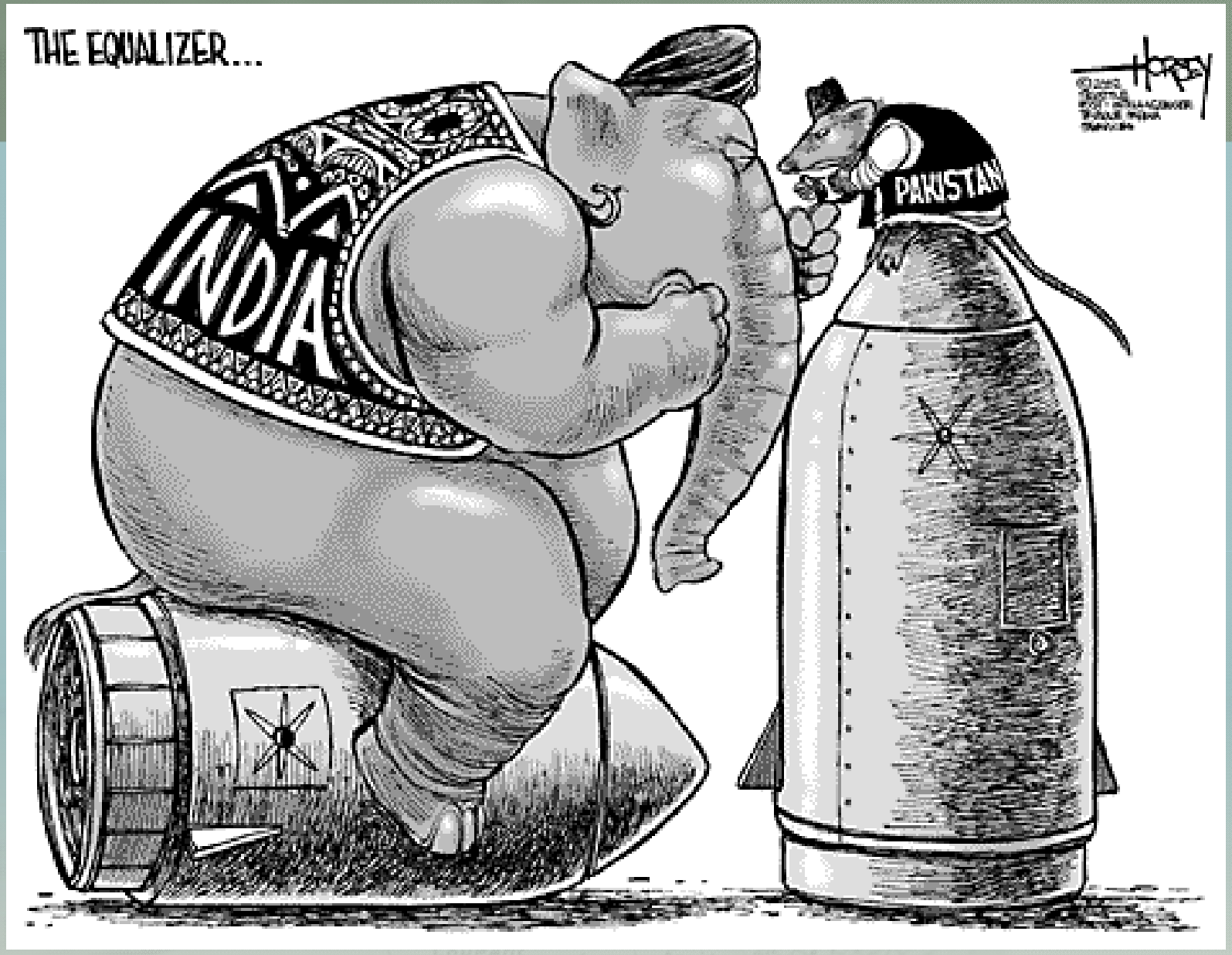
Support and Protest for India's Nuclear Program

Do Nuclear Weapons Make India More Secure?


Global Health Watch
IPPNW Information Series
Bombing Bombay?
Effects of Nuclear Weapons and a Case Study of a Hypothetical Explosion
M. V. Ramana
Published by
International Physicians for the Prevention of Nuclear War
IPPNW


THE WOLVERTOON
BY MONTE WOLVERTON
LOSE 12 MILLION PEOPLE IN TWO WEEKS!
TIRED OF EXCESS POPULATION? GET GUARANTEED RESULTS FAST WITH OUR NUCLEAR DIET PLAN!
INDIAN SUBCONTINENT BEFORE
INDIAN SUBCONTINENT AFTER
GET RID OF EXCESS PEOPLE AND KEEP THEM AWAY WITH RADIOACTIVE CONTAMINATION!
(RESULTS MAY VARY-SOME MUTATION MAY OCCUR)
©2002 Monte Wolverton http://www.wolvertoon.com/toons


TWO WORDS TO KEEP IN MIND DURING NEGOTIATIONS OVER KASHMIR...
PAGASAKI
HINDUSHIMA
www.caglecartoons.com
Mike Keefe THE DENVER POST 2002


THE EQUALIZER...
INDIA
PAKISTAN
HORSEY

Etiology of Addiction

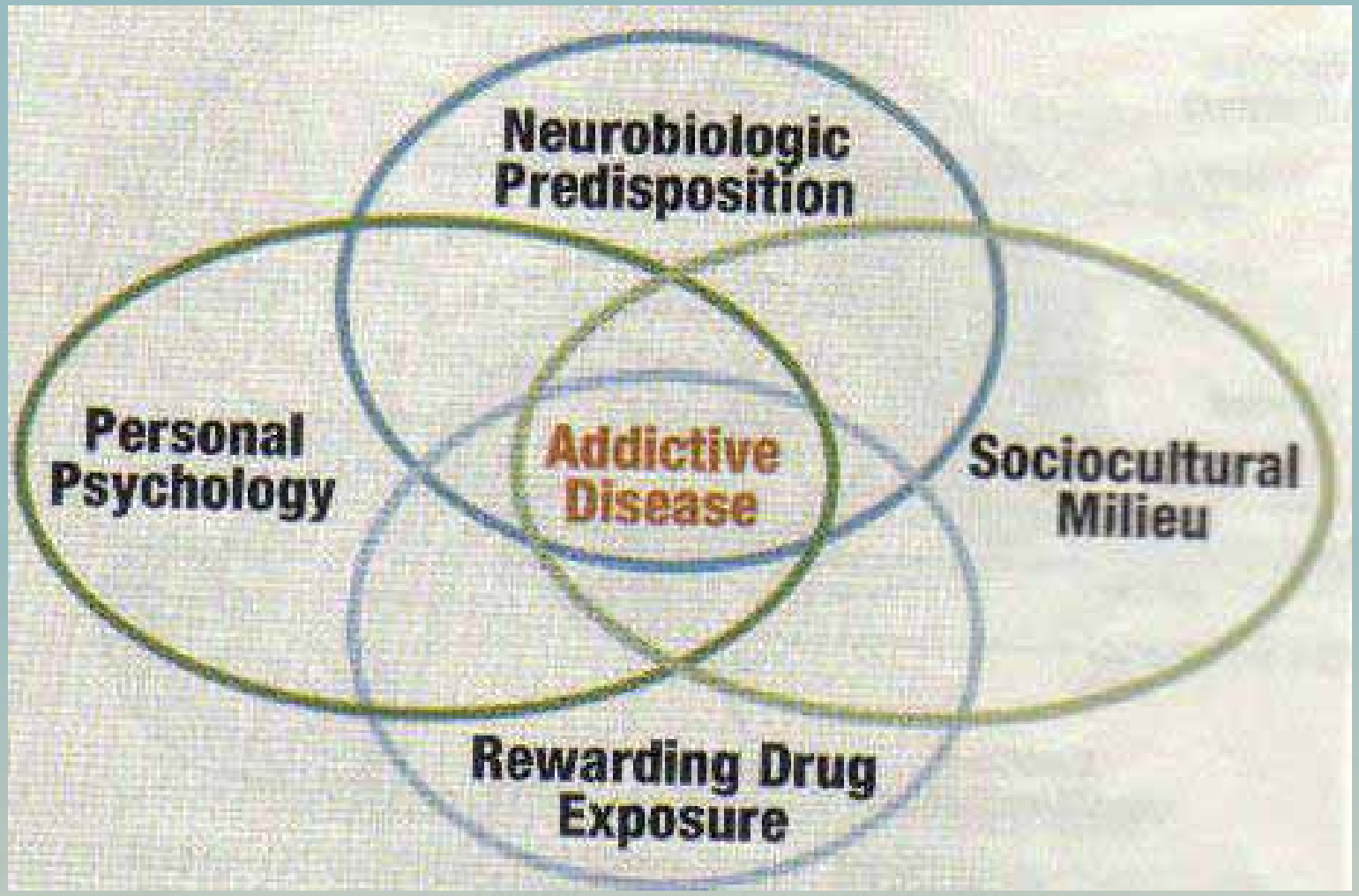
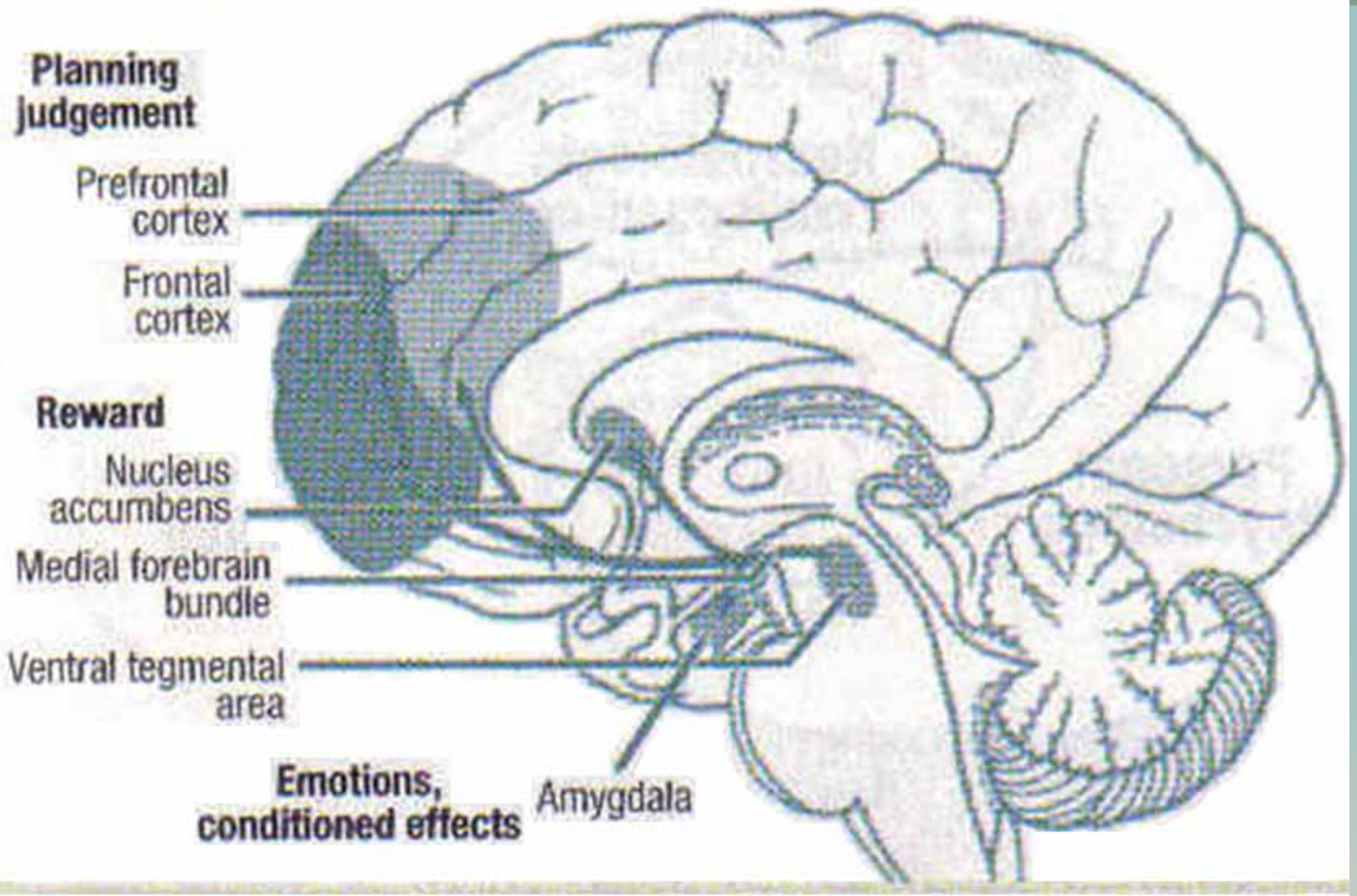
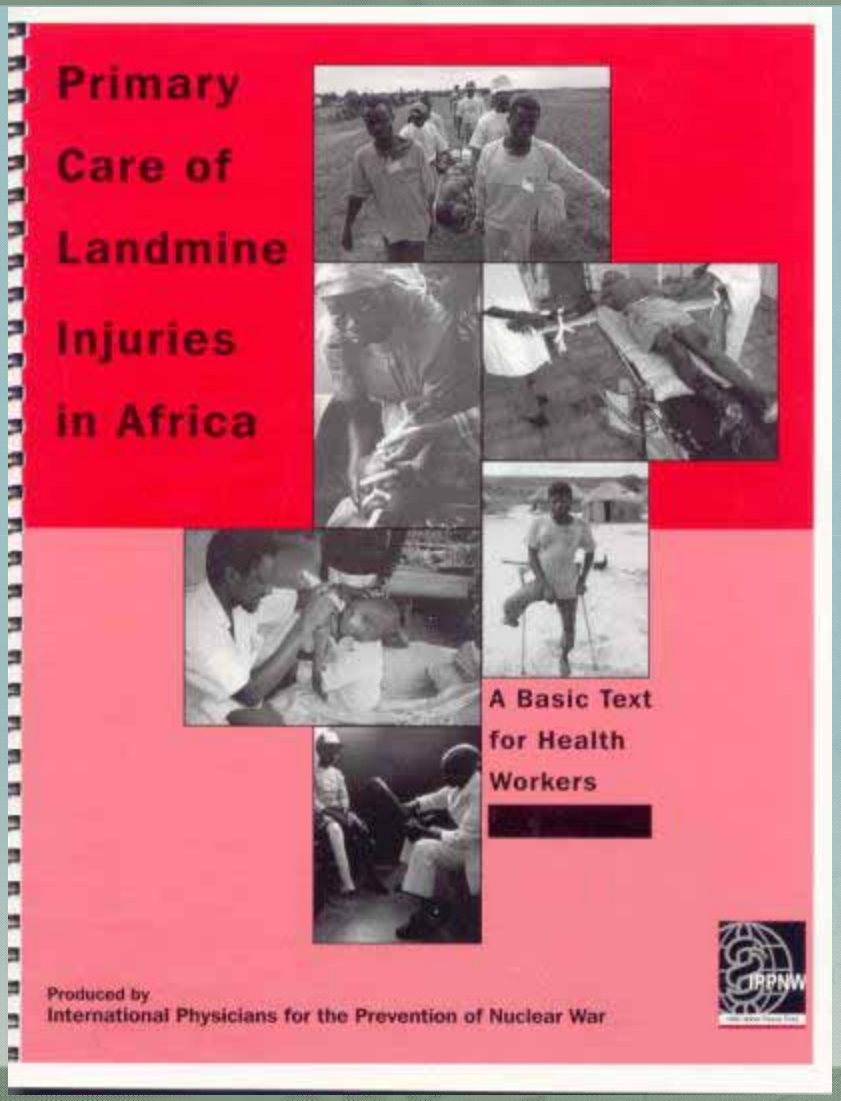
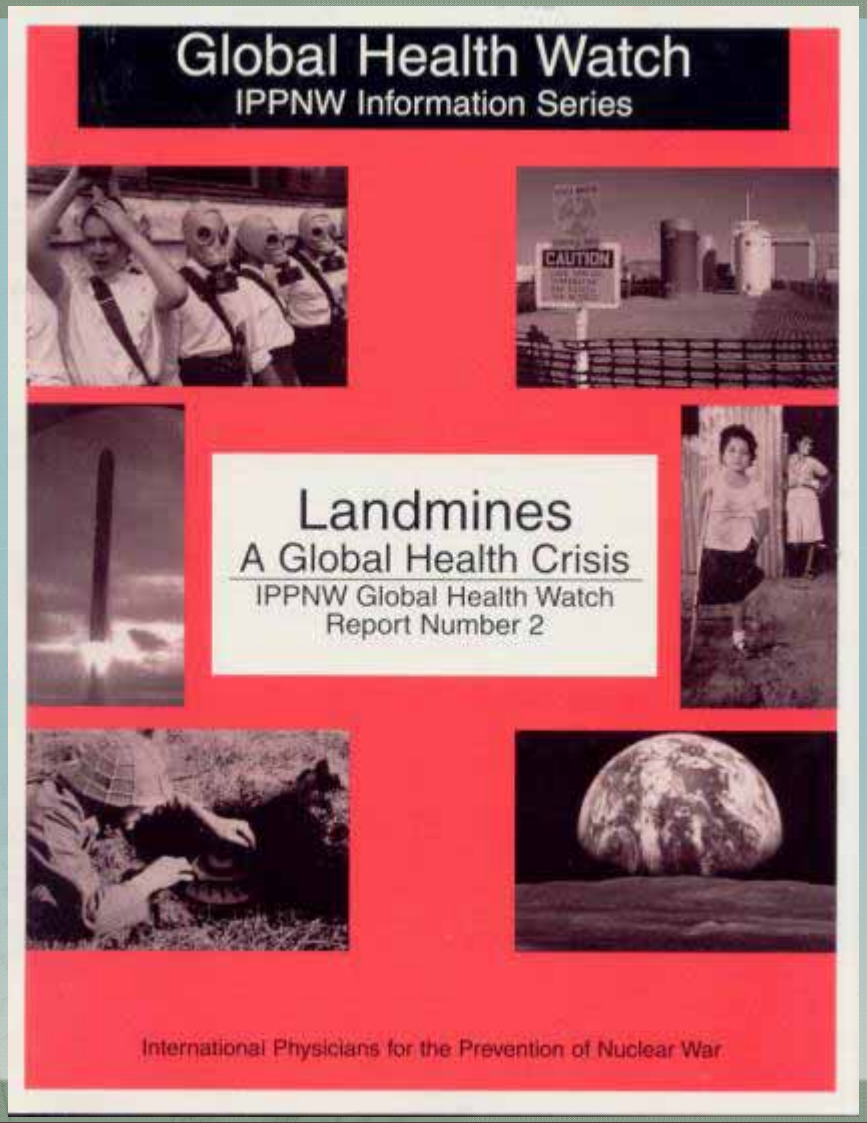


FIGURE 2: BRAIN CIRCUITS OF ADDICTION

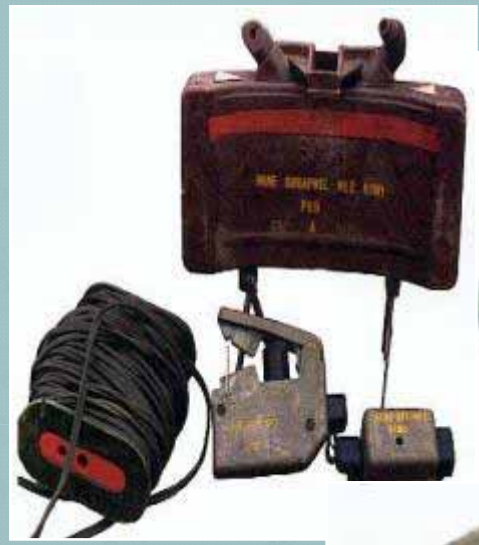


IPPNW: Landmines and Small Arms





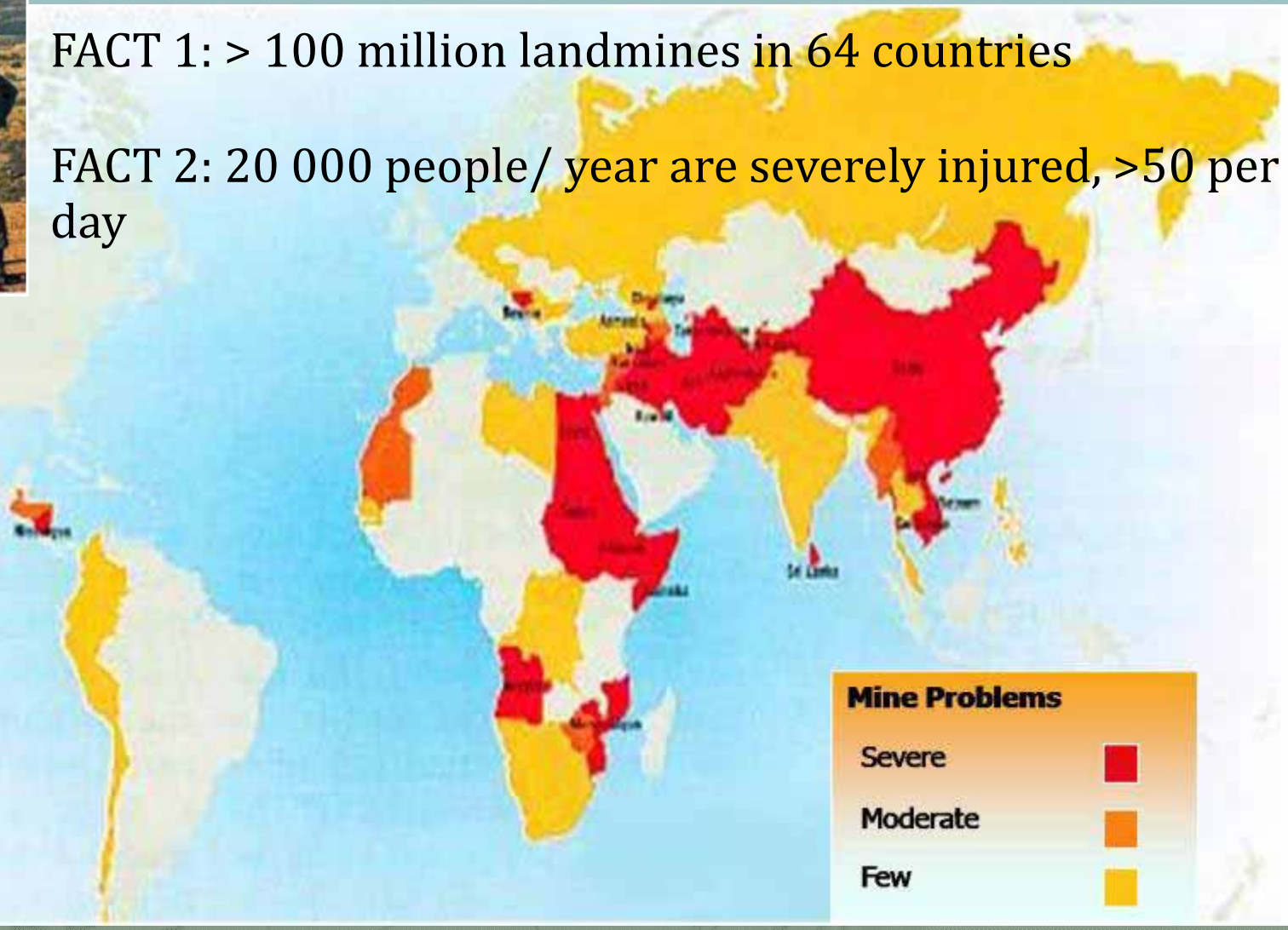
“Landmines have been called 'the perfect soldier‘
- they never sleep and they never miss.”



Landmines in the World

FACT 1: > 100 million landmines in 64 countries

FACT 2: 20 000 people/ year are severely injured, >50 per day



Effect of Landmines

Physical Health and Direct Violence

- Severe injuries
- Disability, morbidity & mortality
- Often kill children due to size
- Blood loss and infections
- Not just immediate victim

Psychological (Mental Well-Being)

- Fear, anger, post-traumatic stress disorder, distrust, depression, trauma of explosions

Effect of Landmines

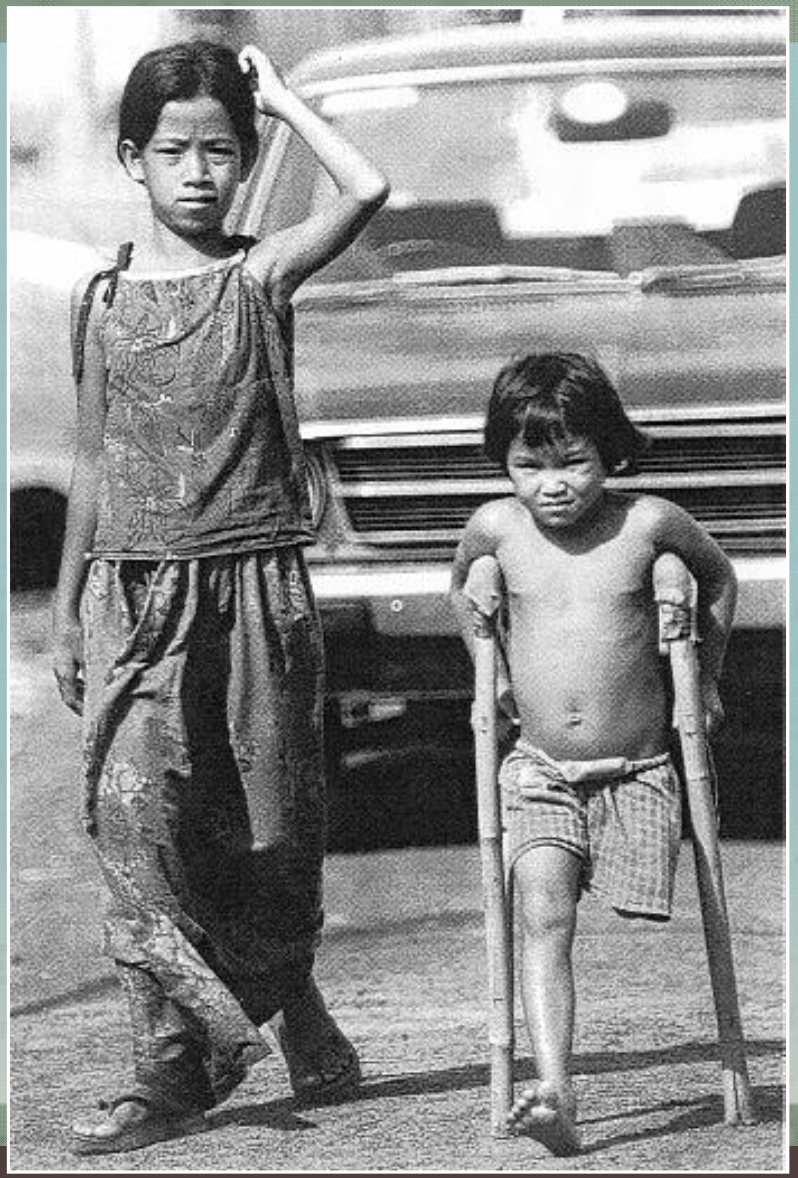
Economic (Structural Violence)

- Loss of individual productivity due to injuries
- Loss of land (fields and paths)
- Costs of clearing landmines

Social Well-Being

- Disruption of communities, families sense of self-worth

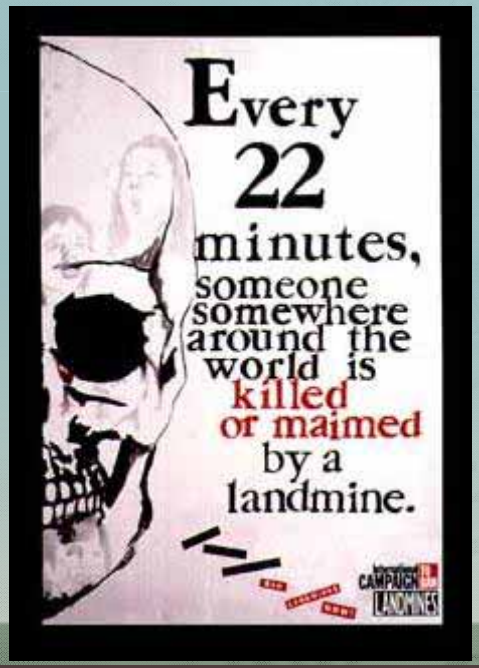
Landmine Victims



Landmines

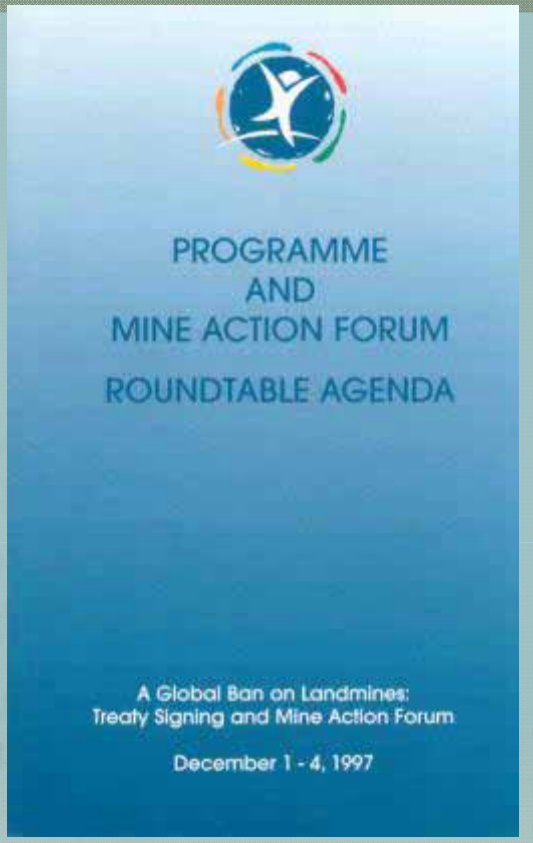
- Pictures Postcards
- Every 22 minutes someone was killed or maimed corresponding to a human death toll of 10,000 deaths per year

  (Stover, Cobey and Fine in Sidel 1997)



Ottawa Convention, 1997*

- The Mine Ban Treaty was signed by 122 governments in December 1997
- March 1999, treaty became binding under international law
- Pressure by NGOs, concerned citizens, and some political leaders around the world
- MBT bans use; production; stockpiling; and sale, transfer, or export of AP mines
  - *officially known as *The 1997 Convention on the Prohibition of the Use, Stockpiling, Production and Transfer or Anti-Personnel Mines and on Their Destruction*



Assisting Victims of Landmines

Assisting Victims of Landmines

Collage credit: McMaster Medical students

Small Arms: A Global Health Crisis

- Public health damage related to small arms and light weapons is far greater than that of landmines because of their physical, psychological, social and economic costs
- One estimate has them killing about 500,000 annually, 300,000 in armed conflict situations and 200,000 in peace
- Public health models are being used:
  - to address gaps in our knowledge
  - to standardize databases and collection methods
  - to propose areas for research
  - to ponder educational & advocacy strategies
  - to evaluate the effectiveness of preventive approaches

Public Health Priority?

- Estimated 200,000 people in non-conflict situations (Cukier)
- 500,000 deaths = one death for every minute
  - tuberculosis (2.9 million)
  - HIV/AIDS (2.3 million)
  - malaria (1.5-2.7 million)
  - youngest and healthiest of society
- Represent c. one quarter of the 2.3 million deaths due to violence[i] [ii] 42% are suicides, 38% are homicides and 26% are war-related[iii] [iv]

[i] Krug, E.E., ed. *World Report on Violence and Health*Geneva: WHO, 2002: http://www5.who.int/violence_injury_prevention/main.cfm?p=0000000675#Appendix%204.
[ii] United Nations Development Programme (UNDP). *UNDP Human Development Report 2000*. New York: Oxford, 2000: p. 36: http://hdr.undp.org/reports/view_reports.cfm?year=2000.
[iii] Reza, A., J.A. Mercy, and E.E. Krug. "Epidemiology of Violent Deaths in the World", *Injury Prevention* (7), 2001: 104-111: http://www.injuryprevention.com
[iv] WHO. "Small Arms and Global Health", paper prepared for SALW talks. Geneva: July 2001: http://www5.who.int/violence_injury_prevention/download.cfm?id=0000000158

Presentation at a Peace Through Health Conference

Published in British Medical Journal

Confronting the small arms pandemic

Unrestricted access should be viewed as a public health disaster

Physicians throughout the world bear witness to the terrible consequences of small arms. But do we truly understand the impact and the epidemiology of the small arms pandemic, and can we devise effective strategies for prevention as we have for other major public health issues? The capacity for collecting consistent, reliable, and relevant data is limited by various cultural, economic, infrastructural, and logistic factors even in developed countries not at war. Nevertheless, we have some solid data on the size of the problem and indicators suggestive of possible solutions.

The United States, for instance, has over 28 000 deaths a year from small arms—accidents, suicides, and homicides—the highest rate in the developed world.[1] In that country firearms are the leading cause of death among 15-24 year olds, slightly ahead of vehicle crashes, and the third leading cause of death in those aged under 15.[2] While the US murder rate without guns is roughly equivalent to that of Canada (1.3 times), its murder rate with handguns is 15 times the Canadian rate.[3] Countries with similar cultural, economic, and ethnic make up but with different gun possession rates also have widely differing firearm death rates, roughly correlating with the percentage of households with guns.[4] For example, Britain's firearm death rate is about 0.3 in 100 000 while the US rate is 10.6.[5] Households with firearms are three times more likely to have murders and five times more likely to have suicides (due to all causes) than similar households without firearms.[6,7] These data suggest that firearm deaths may be preventable by controlling the supply and possession of guns.

Data from the developing world are less clear, especially in conflict situations. In many post-conflict countries in Central America and Africa only a tiny percentage of guns are registered, estimates of the total in circulation vary widely, and reporting of casualties may be affected by fear of the authorities. Nevertheless, small arms were unarguably the primary cause of death in wars in the 1990s, accounting for about 300 000 deaths a year.[8] Together with the estimated 200 000 people who die each year from firearms in non-conflict situations these deaths represent about a quarter of the 1.8-2.3 million deaths due to violence in a typical year in the 1990s.[9,10] The victims are often the youngest and healthiest members of society. Male combatants are the major perpetrators and direct victims of small arms violence, but in many conflicts non-combatants—disproportionately women and children—account for a large proportion of direct casualties and may also suffer the psychological and social burdens of increased domestic violence.

Impacts have also been evaluated in economic terms. Small arms purchases account for perhaps US$10bn (£6.9bn; €11bn) each year, a relatively small proportion of the roughly $850bn spent on military forces annually worldwide.[11] Yet the economic consequences can be far greater. In Colombia violence primarily related to small arms has been calculated as costing up to 25% of the country's gross domestic product (OV Vieira, Workshop on International Small Arms/Firearms Injury Surveillance and Research, Toronto, 1998).

Unless weapons are removed when hostilities end, casualties may not be substantially reduced. In the

Published in British Medical Journal

mid-1990s in Afghanistan, for example, Meddings found a decline in the rate of weapons related injury, before and after a particular region came under uncontested control, of only 20-40% when weapons remained in circulation.[8]

Supply side strategies such as buyback and amnesty schemes have been tried in countries such as the United Kingdom and Australia. In response to massacres at Dunblane and Port Arthur, those countries tightened regulations, the former banning handguns and the latter semiautomatic rifles. British citizens voluntarily turned in 250 000 weapons, while the Australian buyout programme netted 750 000. Law enforcement officials in both countries affirm the effectiveness of these measures in reducing damage by these weapons.

Many argue that a supply side approach alone is inadequate, and various demand side measures have been proposed. Awareness building and educational programmes to promote cultures of peace; international norms that stigmatise the possession of guns; and programmes to reintegrate former combatants into society and to provide real economic opportunities have all been postulated to reduce harm from small arms, but are more difficult subjects of study. In Mozambique a unique project, Tools for Arms, combines supply and demand side approaches. The buyback of weapons, the metal of which is turned into art, provides compensation for gun owners, giving them new economic opportunities.

International humanitarian law may be applied to restrict weapons that cause damage disproportionate to war aims. Whole classes of weapons could be banned from civilian possession, just as landmines and other indiscriminately harmful weapons have been banned from military and civilian use. Although it seems clear that restrictions on the possession of weapons are necessary to prevent harm due to small arms, such restrictions are fiercely opposed by highly organised, wealthy, and influential groups such as America's National Rifle Association. The failure to reach meaningful agreement to control illegal manufacture and trafficking in small arms at the recent United Nations conference on the illicit trade in small arms and light weapons was partly the result of the lobbying of these groups.

Public health models could be used to evaluate the effectiveness of each preventive approach. International Physicians for the Prevention of Nuclear War (IPPNW) has used the public health paradigm to call for the abolition of nuclear weapons and to support the global ban on landmines. With the convening of an international medical conference on small arms last autumn in Helsinki, IPPNW announced its intent to campaign for policies that can reduce firearms related injuries. The conference drew more than 200 participants—physicians, researchers, social scientists, peace activists, representatives of governments and international agencies, and students—from six continents to address gaps in our knowledge, propose areas for research, and ponder educational and advocacy strategies.

The next steps will be to determine data on which to base recommendations for policy change and community action; standardise databases and collection methods across the world; heighten awareness about the public health and social consequences of small arms among local, national, and international policy makers; and inform professional colleagues, students, and the public about the multiple causes and the devastating consequences of small arms violence.

Neil Arya *family doctor and president of Physicians for Global Survival*

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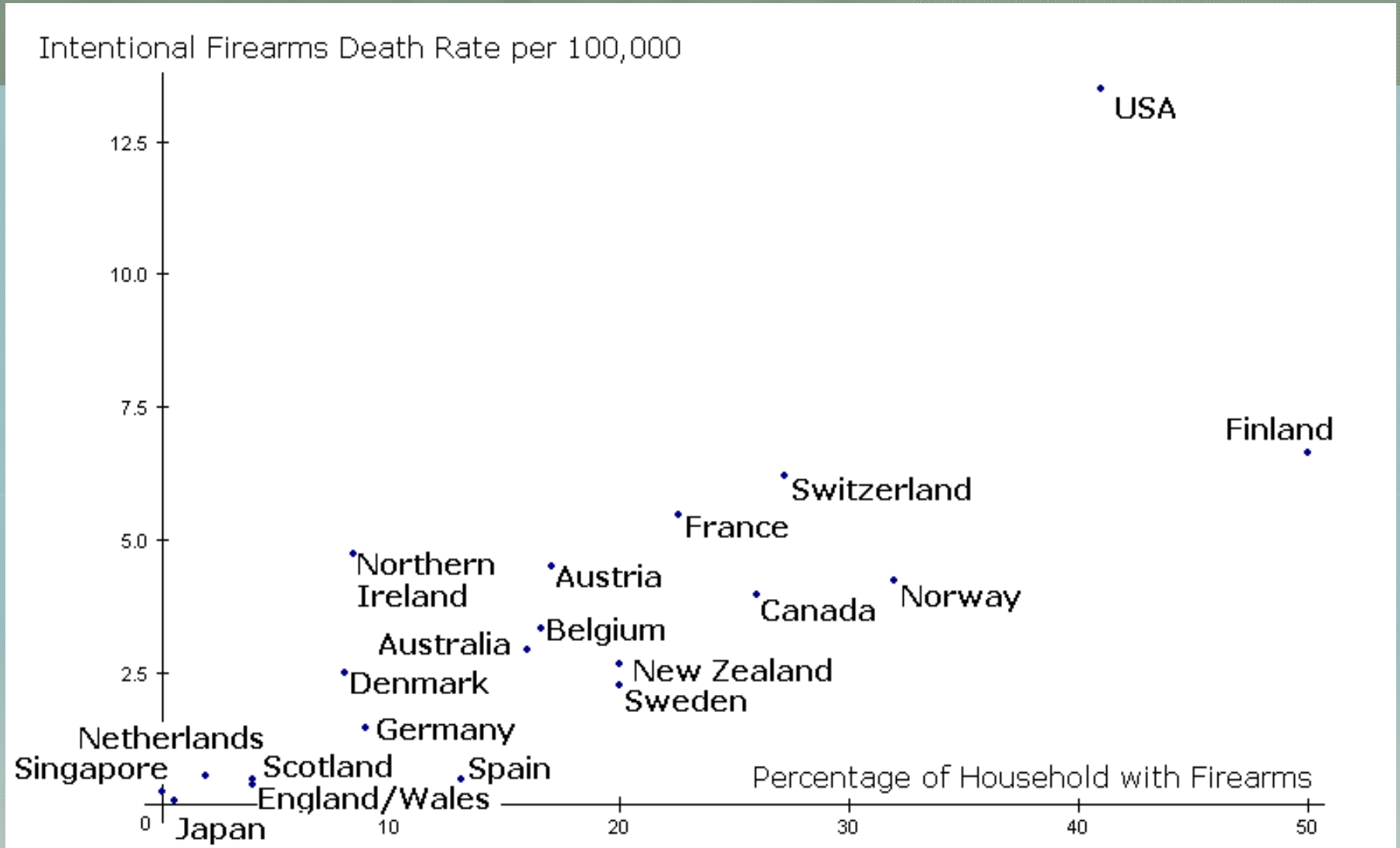
Firearms Possession and Death Rates



Study by Krug et al.

Firearm-related deaths in the United States and 35 other high- and upper-middle-income countries

EG Krug, KE Powell and LL Dahlberg

Background	The Forty-Ninth World Health Assembly recently declared violence a worldwide public health problem. Improved understanding of cross-national differences is useful for identifying risk factors and may facilitate prevention efforts. Few cross-national studies, however, have explored firearm-related deaths. We compared the incidence of firearm-related deaths among 36 countries.
Methods	Health officials in high-income (HI) and upper-middle-income countries (UMI) with populations greater than one million were asked to provide data using ICD-9 codes on firearm-related homicides, suicides, unintentional deaths and deaths of undetermined intent, as well as homicides and suicides for all methods combined. Thirty-six (78%) of the 46 countries provided complete data. We compared age-adjusted rates per 100 000 for each country and pooled rates by income group and geographical location.
Results	During the one-year study period, 88 649 firearm deaths were reported. Overall firearm mortality rates are five to six times higher in HI and UMI countries in the Americas (12.72) than in Europe (2.17), or Oceania (2.57) and 95 times higher than in Asia (0.13). The rate of firearm deaths in the United States (14.24 per 100 000) exceeds that of its economic counterparts (1.76) eightfold and that of UMI countries (9.69) by a factor of 1.5. Suicide and homicide contribute equally to total firearm deaths in the US, but most firearm deaths are suicides (71%) in HI countries and homicides (72%) in UMI countries.
Conclusions	Firearm death rates vary markedly throughout the industrialized world. Further research to identify risk factors associated with these variations may help improve prevention efforts.

Keywords	Firearms, violence, suicide, homicide, cross-cultural comparison, developed countries, epidemiology
Accepted	21 August 1997

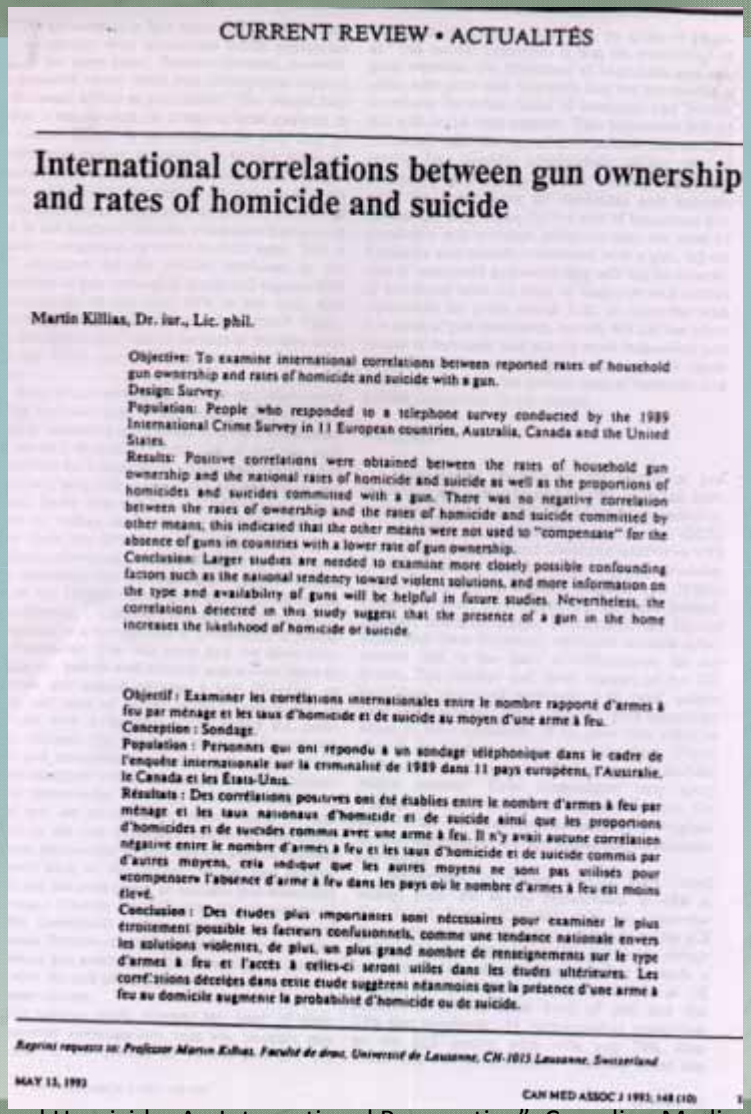
In 1990, self-directed and interpersonal violence caused 2.7% of the world's disability adjusted life years (DALY) loss—the numbers of years of life lost from premature death combined with the loss of health from disability.[1] This percentage is projected to increase to 4.2% in 2020. In view of what is described as a dramatic increase in the incidence of intentional injuries, the Forty-Ninth World Health Assembly recently adopted a resolution declaring violence a leading worldwide public health problem and urged member states to assess and develop science-based solutions to the problem.[2]

Violence can be defined as the intentional use of physical force—against another person or against oneself—which results in or has a high likelihood of resulting in injury or death.[3] Much of the previous research conducted on violent deaths has focused on homicide or suicide. In some countries, firearms are the most frequently used weapons in homicide and suicide. This is particularly true in the United States, where 71% of homicides and 61% of suicides are firearm-related.[4] In 1993, a firearm was involved in the deaths of 39 595 people in the US (15.6 per 100 000), making firearm injuries the seventh leading cause of death.[5]

Most of the research on firearm-related deaths has focused on individual countries.[6–11] To our knowledge, only two descriptive epidemiological cross-national studies of firearm mortality have been published; one used the same data source as this paper and was restricted to children <15 years old,[12] and the other was restricted to firearm homicides among males 15–24 years of age.[13] International comparisons of firearm-related

Division of Violence Prevention, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Mailstop K60, 4770 Buford Hwy, Atlanta, GA 30341, USA.

Study by Killias



CURRENT REVIEW • ACTUALITÉS

International correlations between gun ownership and rates of homicide and suicide

Martin Killias, Dr. iur., Lic. phil.

Objective: To examine international correlations between reported rates of household gun ownership and rates of homicide and suicide with a gun.
Design: Survey.
Population: People who responded to a telephone survey conducted by the 1989 International Crime Survey in 11 European countries, Australia, Canada and the United States.
Results: Positive correlations were obtained between the rates of household gun ownership and the national rates of homicide and suicide as well as the proportions of homicides and suicides committed with a gun. There was no negative correlation between the rates of ownership and the rates of homicide and suicide committed by other means; this indicated that the other means were not used to "compensate" for the absence of guns in countries with a lower rate of gun ownership.
Conclusion: Larger studies are needed to examine more closely possible confounding factors such as the national tendency toward violent solutions, and more information on the type and availability of guns will be helpful in future studies. Nevertheless, the correlations detected in this study suggest that the presence of a gun in the home increases the likelihood of homicide or suicide.

Objectif : Examiner les corrélations internationales entre le nombre rapporté d'armes à feu par ménage et les taux d'homicide et de suicide au moyen d'une arme à feu.
Conception : Sondage.
Population : Personnes qui ont répondu à un sondage téléphonique dans le cadre de l'enquête internationale sur la criminalité de 1989 dans 11 pays européens, l'Australie, le Canada et les États-Unis.
Résultats : Des corrélations positives ont été établies entre le nombre d'armes à feu par ménage et les taux nationaux d'homicide et de suicide ainsi que les proportions d'homicides et de suicides commis avec une arme à feu. Il n'y avait aucune corrélation négative entre le nombre d'armes à feu et les taux d'homicide et de suicide commis par d'autres moyens, cela indique que les autres moyens ne sont pas utilisés pour «compenser» l'absence d'arme à feu dans les pays où le nombre d'armes à feu est moins élevé.
Conclusion : Des études plus importantes sont nécessaires pour examiner le plus étroitement possible les facteurs confusionnels, comme une tendance nationale envers les solutions violentes, de plus, un plus grand nombre de renseignements sur le type d'armes à feu et l'accès à celles-ci seront utiles dans les études ultérieures. Les corrélations décelées dans cette étude suggèrent néanmoins que la présence d'une arme à feu au domicile augmente la probabilité d'homicide ou de suicide.

Reprint requests to: Professor Martin Killias, Faculté de droit, Université de Lausanne, CH-1015 Lausanne, Switzerland

MAY 15, 1993

CAN MED ASSOC J 1993; 148 (10)

Reference: Killias, M. “Gun Ownership, Suicide and Homicide: An International Perspective”, Canadian Medical Association Journal, April 1993.

CDC Study

Angiosarcoma — Continued

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Rates of Homicide, Suicide, and Firearm-Related Death Among Children — 26 Industrialized Countries

During 1950–1993, the overall annual death rate for U.S. children aged <15 years declined substantially (*1*), primarily reflecting decreases in deaths associated with unintentional injuries, pneumonia, influenza, cancer, and congenital anomalies. However, during the same period, childhood homicide rates tripled, and suicide rates quadrupled (*2*). In 1994, among children aged 1–4 years, homicide was the fourth leading cause of death; among children aged 5–14 years, homicide was the third leading cause of death, and suicide was the sixth (*3*). To compare patterns and the impact of violent deaths among children in the United States and other industrialized countries, CDC analyzed data on childhood homicide, suicide, and firearm-related death in the United States and 25 other industrialized countries for the most recent year for which data were available in each country (*4*). This report presents the findings of this analysis, which indicate that the United States has the highest rates of childhood homicide, suicide, and firearm-related death among industrialized countries.

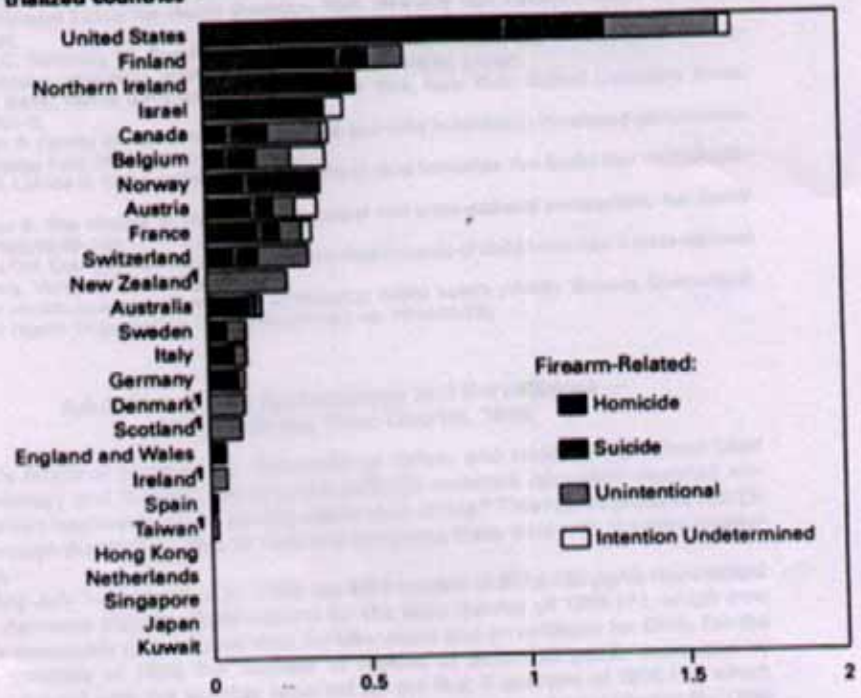
In the 1994 *World Development Report* (*5*), 208 nations were classified by gross national product; from that list, the United States and all 26 of the other countries in the high-income group and with populations of ≥1 million were selected because of their economic comparability and the likelihood that those countries maintained vital records most accurately. In January and February 1996, the ministry of health or the national statistics institute in each of the 26 countries were asked to provide denominator data and counts by sex and by 5-year age groups for the most recent year data were available for the number of suicides (*International Classification of Diseases, Ninth Revision* [ICD-9], codes E950.0–E959), homicides (E960.0–E969), suicides by firearm (E955.0–E955.4), homicides by firearm (E965.0–E965.4), unintentional deaths caused by firearm (E922.0–E922.9), and firearm-related deaths for which intention was undetermined (E985.0–E985.4); 26 (96%) countries, including the United States, provided complete data*. Twenty (77%) countries provided data for 1993 or 1994; the remaining countries provided data for 1990, 1991, 1992, or 1995. Cause-specific rates

*Complete data were provided by Australia, Austria, Belgium, Canada, Denmark, England and Wales, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Kuwait, Netherlands, New Zealand, Northern Ireland, Norway, Scotland, Singapore, Sweden, Spain, Switzerland, Taiwan, and the United States. In this analysis, Hong Kong, Northern Ireland, and Taiwan are considered as countries.

CDC Study

Homicide, Suicide, and Firearm-Related Deaths — Continued

FIGURE 1. Rates* of firearm-related death† among children aged <15 years — 26 industrialized countries§



*Per 100,000 children aged <15 years and for 1 year during 1990–1995.
†Homicides by firearm (*International Classification of Diseases, Ninth Revision*, codes E965.0–E965.4), suicides by firearm (E955.0–E955.4), unintentional deaths caused by firearm (E922.0–E922.9), and firearm-related deaths for which intention was undetermined (E985.0–E985.4).
§All countries classified in the high-income group with populations ≥1 million (*5*) that provided complete data. In this analysis, Hong Kong, Northern Ireland, and Taiwan are considered as countries.
¶Reported only unintentional firearm-related deaths.

Organization (*10*). Cross-cultural comparisons may identify key factors (e.g., attitudinal, behavioral, educational, socioeconomic, or regulatory) not evident from intranational studies that could assist in the development of new country-specific strategies for preventing such deaths.

Study by Sloan et al.

SPECIAL ARTICLE

FIREARM REGULATIONS AND RATES OF SUICIDE

A Comparison of Two Metropolitan Areas

JOHN HENRY SLOAN, M.D., M.P.H., FREDERICK P. RIVARA, M.D., M.P.H., DONALD T. REAY, M.D., JAMES A.J. FERRIS, M.D., M.R.C.PATH., AND ARTHUR L. KELLERMANN, M.D., M.P.H.

Abstract To investigate a possible association between firearm regulations and suicide, we compared the incidence of suicide from 1985 through 1987 in King County, Washington, with that in the Vancouver metropolitan area, British Columbia, where firearm regulations are more restrictive.

The risk of death from suicide was not found to differ significantly between King County and the Vancouver area (relative risk, 0.97; 95 percent confidence interval, 0.87 to 1.09). The rate of suicide by firearms, however, was higher in King County (relative risk, 2.34; 95 percent confidence interval, 1.90 to 2.88), because the rate of suicide by handguns was 5.7 times higher there. The difference in the rates of suicide by firearms was offset by a 1.5-fold higher rate of suicide by other means in the Vancouver area. Persons 15 to 24 years old had a higher suicide rate in King County than in the Vancouver area (relative risk, 1.38; 95 percent confidence interval, 1.02 to 1.86). Virtually all the difference was due to an almost 10-fold higher rate of suicide by handguns in King County.

We conclude that restricting access to handguns might be expected to reduce the suicide rate in persons 15 to 24 years old, but that it probably would not reduce the overall suicide rate. (N Engl J Med 1990; 322:369-73.)

SUICIDE is a major public health problem in the United States. In 1980 nearly 27,000 persons took their own lives, making suicide the 10th most common cause of death overall and the third most common cause among adolescents and young adults.[1] Given that 57 percent of the cases of suicide in the United States involve firearms,[2] much attention has been focused on the relation between the availability of firearms and the rates of suicide in communities. Citing the frequently impulsive nature of suicidal urges and the high case-fatality rate from injuries inflicted by firearms as compared with other methods of suicide, some persons have urged gun control as a means of reducing suicide rates.[3,4]

One method of evaluating the potential effect of gun-control laws on suicide rates in the United States is through comparisons with the situation in other countries. However, such comparisons of suicide rates and degrees of gun control are usually flawed because of the presence of many differing socioeconomic, cultural, and behavioral factors.

We studied the relation between firearm regulations

From the Departments of Pediatrics (F.P.R.), Epidemiology (F.P.R.), and Pathology (D.T.R.), University of Washington, Seattle; the Harborview Injury Prevention and Research Center, Seattle (J.H.S., F.P.R., D.T.R.); the King County Medical Examiner's Office, Seattle (D.T.R.); the Division of Plastic Surgery and Rehabilitation Medicine, Stanford University, Stanford, Calif. (J.H.S.); the Department of Forensic Pathology, University of British Columbia, Vancouver (J.A.J.F.); and the Department of Medicine, University of Tennessee, Memphis (A.L.K.). Address reprint requests to Dr. Rivara at the Harborview Injury Prevention and Research Center, Harborview Medical Center, Mailstop ZX-10, 325 Ninth Ave., Seattle, WA 98104.

Supported by a grant (CCRO-02570-02) from the Centers for Disease Control.

Study by Kellerman et al.

0079-6061/93/4502-0036$3.00/0
The Journal of Trauma: Injury, Infection, and Critical Care

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Injuries and Deaths Due to Firearms in the Home

Arthur L. Kellermann, MD, MPH, Grant Somes, PhD, Frederick P. Rivara, MD, MPH, Roberta K. Lee, RN, PhD, and Joyce G. Banton, MS

Objectives: **Determine the relative frequency with which guns in the home are used to injure or kill in self-defense, compared with the number of times these weapons are involved in an unintentional injury, suicide attempt, or criminal assault or homicide.**

Methods: **We reviewed the police, medical examiner, emergency medical service, emergency department, and hospital records of all fatal and nonfatal shootings in three U.S. cities: Memphis, Tennessee; Seattle, Washington; and Galveston, Texas.**

Results: **During the study interval (12 months in Memphis, 18 months in Seattle, and Galveston) 626 shootings occurred in or around a residence. This total included 54 unintentional shootings, 118 attempted or completed suicides, and 438 assaults/homicides. Thirteen shootings were legally justifiable or an act of self-defense, including three that involved law enforcement officers acting in the line of duty. For every time a gun in the home was used in a self-defense or legally justifiable shooting, there were four unintentional shootings, seven criminal assaults or homicides, and 11 attempted or completed suicides.**

Conclusions: **Guns kept in homes are more likely to be involved in a fatal or nonfatal accidental shooting, criminal assault, or suicide attempt than to be used to injure or kill in self-defense.**

Key Words: **Injury, Firearms, Epidemiology.**

Forty percent of American homes contain one or more firearms.[1] People own guns for many reasons, including hunting, target shooting, and collecting. Guns are also owned, at least in part, for self-defense.[2,3] Fear of crime is widespread, and many consider keeping a gun in the home a reasonable precaution.[2–7] Handgun owners are more likely than owners of rifles or shotguns to cite "self-defense" as their most important reason for owning a gun.[2,6] People who keep guns for self-defense are more likely to keep at least one gun loaded and unlocked than people who keep guns for other purposes.[7]

The belief that keeping a gun provides protection from crime is widespread, but the wisdom of this strategy is far from clear.[8] The gun that is kept loaded and readily available for protection may also be reached by a curious child, an

volved in an unintentional shooting, a criminal assault, or a suicide attempt.

PATIENTS AND METHODS

The data used in this analysis were drawn from a population-based study of fatal and nonfatal gunshot injuries in three U.S. cities: Memphis, Tennessee; Seattle, Washington; and Galveston, Texas.[12] Reports from police, medical examiners, and ambulance crews were linked with records from hospital emergency departments, trauma centers, and community hospitals to identify every gunshot injury that was severe enough to prompt the victim to seek emergency medical treatment. A detailed description of the methodology for case identification is published elsewhere.[13]

Reference: Kellerman, A.L., F.P. Rivara, N.B. Rushforth. "Gun ownership as a risk factor for homicide in the home", N Eng J Med 329, 1993: 1084-1091.

Critics of Public Health Approach to Firearms

Flawed Gun Policy Research Could Endanger Public Safety

Daniel W. Webster, ScD, MPH, Jon S. Vernick, JD, MPH, Jens Ludwig, PhD, and Kathleen J. Lester

Introduction

One of the most important recent trends in firearm policy in the United States is the enactment of laws making it easier for citizens to legally carry concealed guns in public. Knowing the effect of these laws on the public's health is critical for both health advocates and policymakers. A recent study by John Lott, Jr, and David Mustard concludes that these laws were responsible for substantial reductions in violent crime.[1] Even before its publication in 1997, the study received extensive and largely uncritical media attention. Proponents of liberalized gun carrying laws have attempted to use the study to influence policymakers. We find Lott and Mustard's conclusions unsupportable because of serious flaws in the study, most of which bias the results toward finding crime-reducing effects.

More than half of the states now have some form of so-called shall-issue law governing the carrying of concealed firearms. Under these laws, local authorities "shall" issue a permit to any citizen who passes a criminal history background check and meets other objective criteria (such as a minimum age requirement). By comparison, many states still have "may-issue" concealed-carry laws. As the name implies, under may-issue laws, state officials have considerable discretion in deciding whether to grant a permit, often requiring the applicant to demonstrate some special need to carry a concealed gun. The amount of discretion varies depending on the specific language of the state law. This discretion can also create substantial within-state variation in the issuance of [illegible] permits issued in urban areas.

Both proponents and opponents of shall-issue laws believe that the laws have important implications for public health. Proponents claim that arming citizens enhances public safety by enabling potential victims to protect themselves and acting as a deterrent against violent crime.[2,3] Opponents claim that an increase in the number of people carrying guns will increase the lethality of spontaneous confrontations[4] and spur criminals to resort to more lethal means during street robberies.[5]

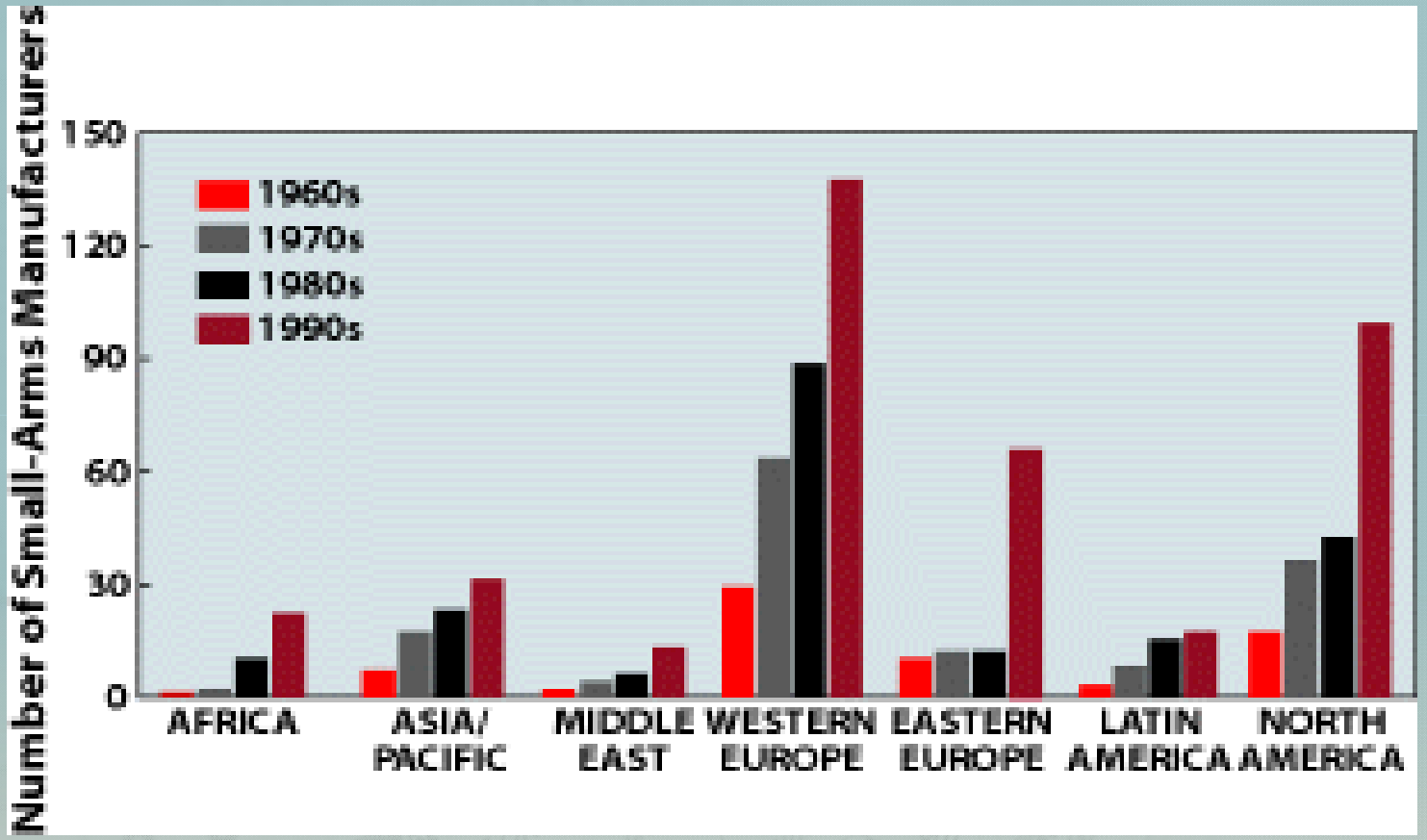
Research on the effects of increased gun carrying by civilians is incomplete, but the weight of evidence suggests that more gun carrying leads to more deaths. Although criminals are sometimes deterred from victimizing someone they believe to be armed, they are also more likely to carry guns to protect themselves against possibly armed victims.[6] This may explain why robbers are more likely to use a gun in cities where gun ownership is higher, and why robbery homicide rates are higher in those cities.[5] McDowall, Loftin, and Wiersema studied the effects of shall-issue legislation in five cities in three states.[7] They found that shall-issue laws were associated with significant increases in firearm homicides in three of the five cities. They also found that Florida's shall-issue law was associated with an increase in homicides for the state

Daniel W. Webster and Jon S. Vernick are with the Center for Gun Policy and Research, Johns Hopkins University, Baltimore, Md. Jens Ludwig is with the Graduate Public Policy Program, Georgetown University, Washington, DC. Kathleen J. Lester is a law student at Georgetown University.

Requests for reprints should be sent to Daniel W. Webster, ScD, MPH, Center for Gun Policy and Research, Johns Hopkins University, [illegible]. See also editorial by Morgenstern (p 893), comment by Kellermann (p 910), and article by Cummings et al. (p 974) in this issue.

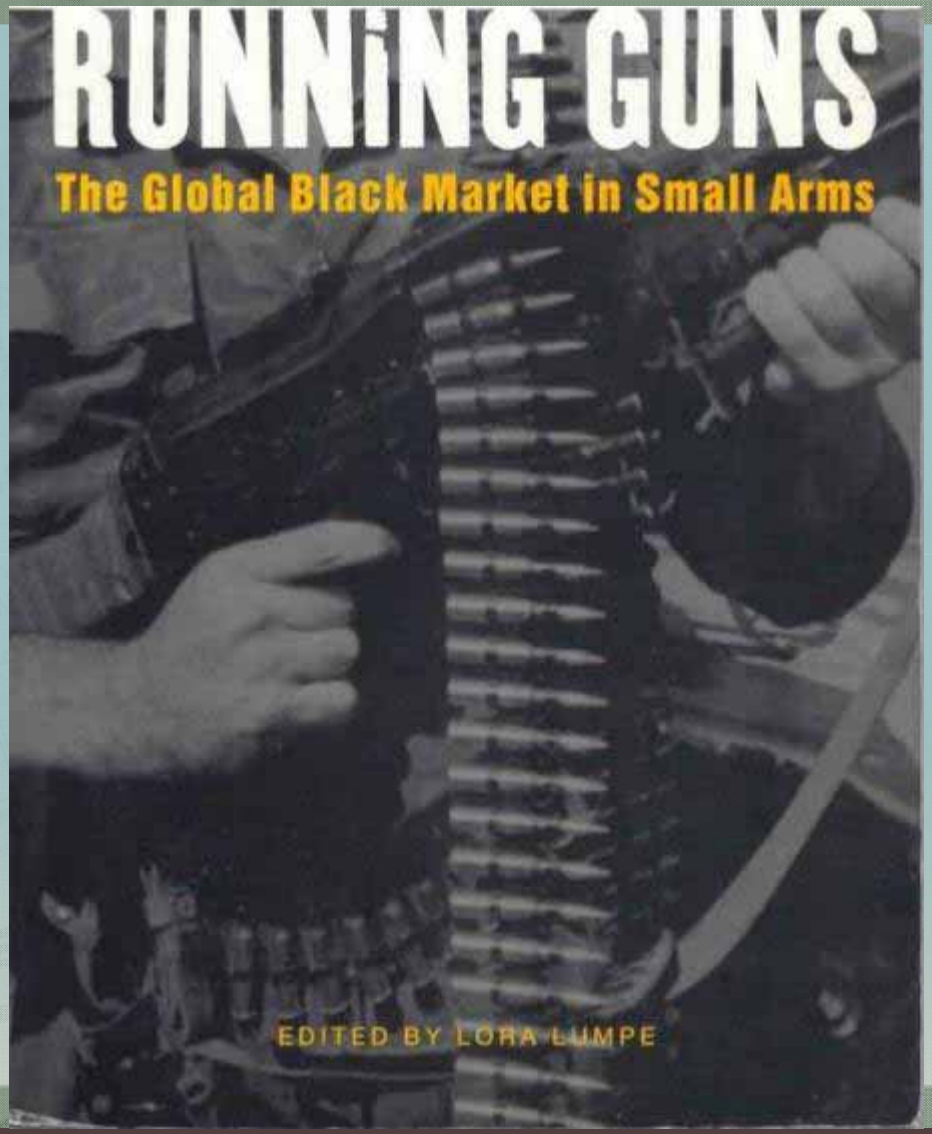
Reference: Webster, Daniel W., Jon S. Vernick and J. Ludwig. "No proof that right-to-carry laws reduce violence", American Journal of Public Health 88, 1998: 982-983.

Small Arms Manufacturing

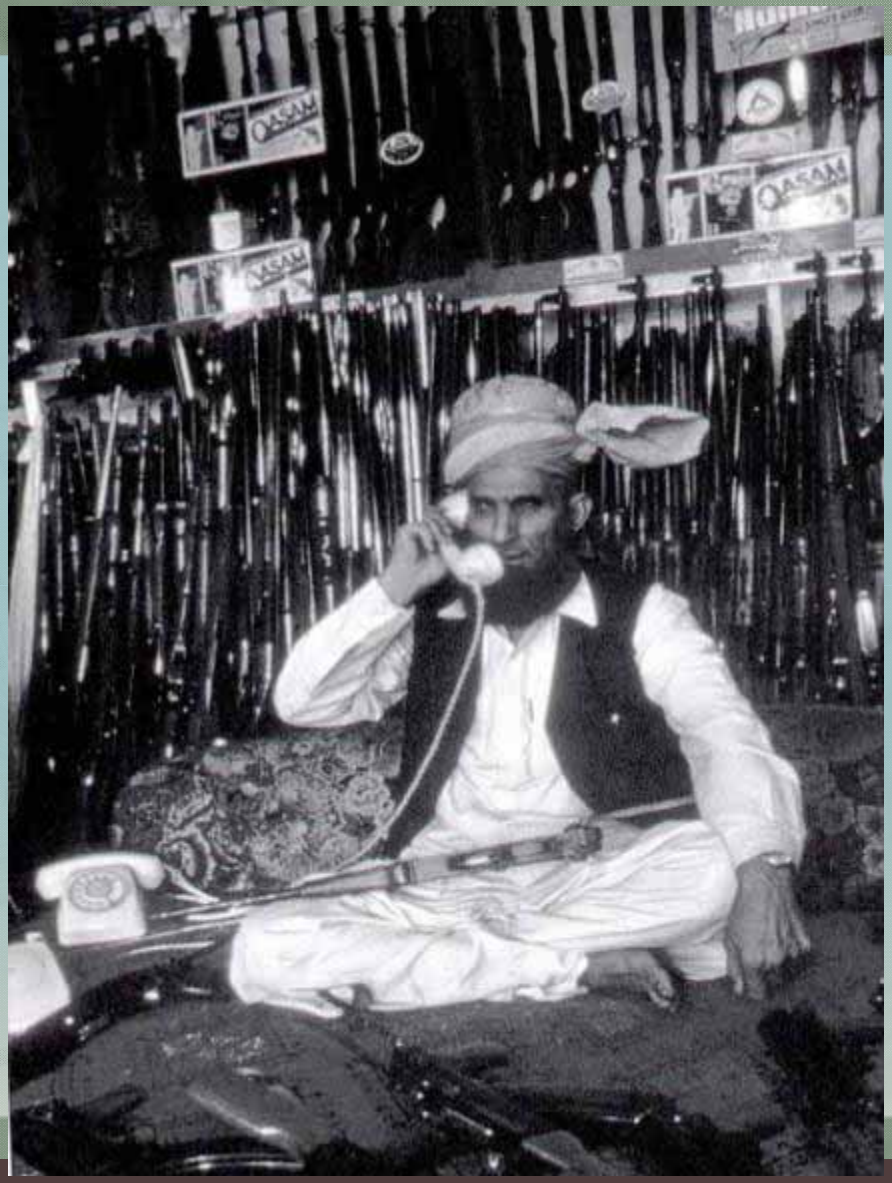


Source: Jeffrey Boutwell and Michael Klare, "A Scourge of Small Arms", Scientific American, Vol. 282, No. 6, June 2000, pp. 30-35.
Adapted from Pete Abel in Lora Lumpe's "Running Guns"

Global Black Market in Small Arms



Arms Trade



Source: ICRC Handbook

Arms Trade: The Boomerang Effect

- $463 million (USD) worth of small arms and ammunition to 124 countries in 1998 (Boutwell and Klare, Scientific American)
- 30 were at war or experiencing persistent civil violence in 1998
- 5 U.S. or U.N. soldiers on peacekeeping duty have been fired on or threatened with U.S.-supplied weapons "boomerang" effect

Arms Trade: The Boomerang Effect

Military Spending and the Arms Trade

Military Spending, 2002

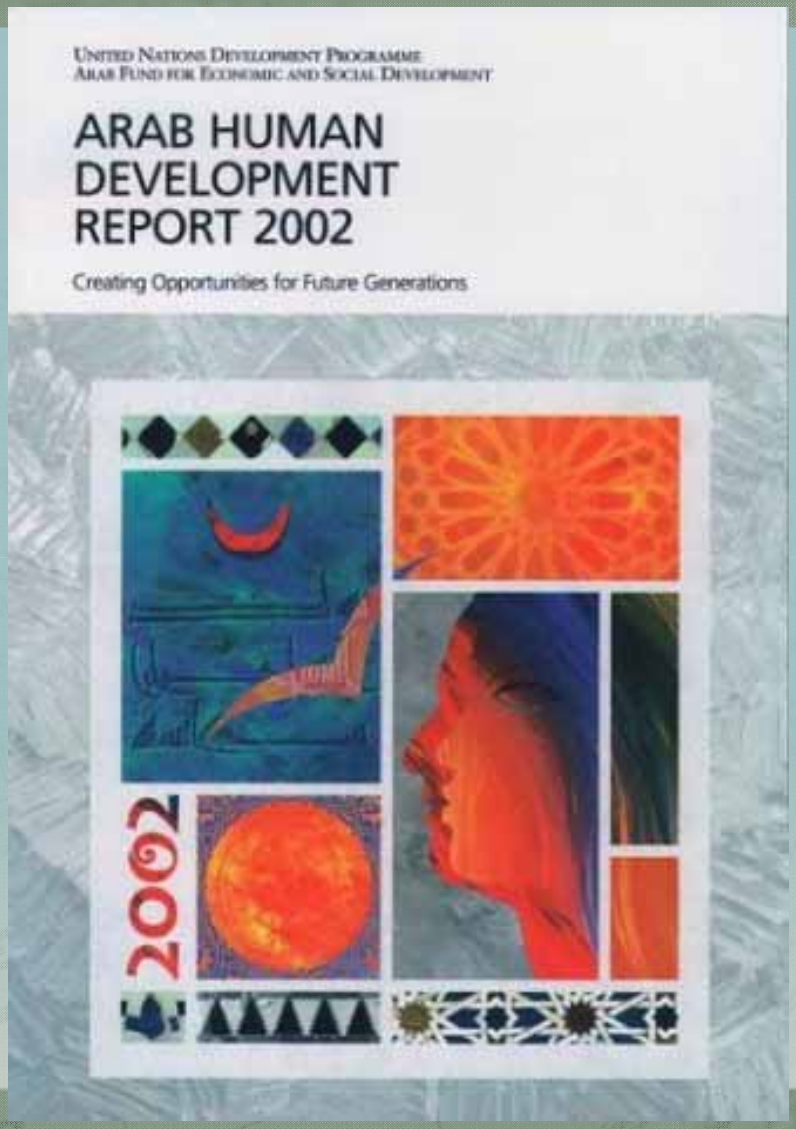
US Military Spending

ÉTATS-UNIS

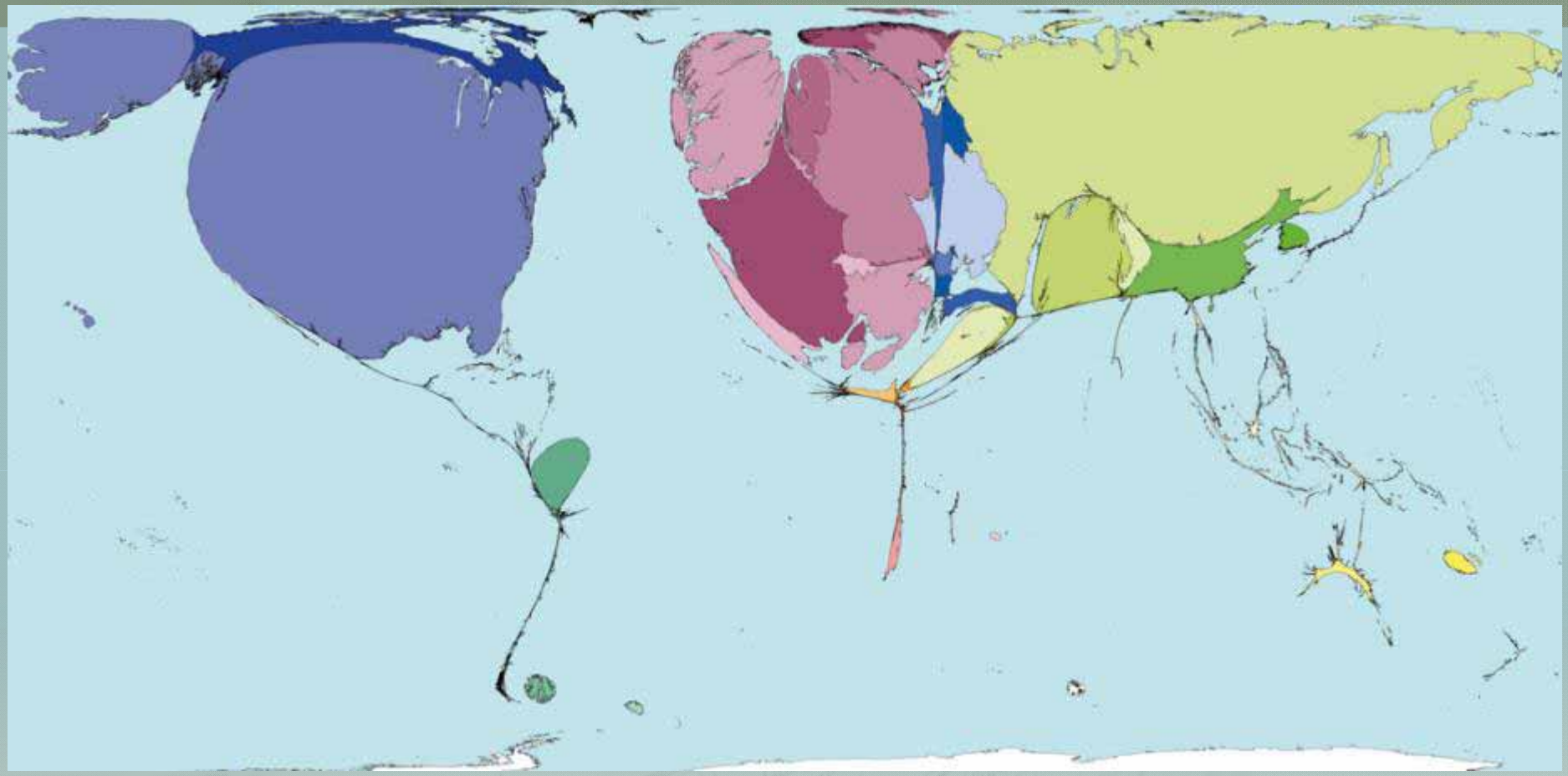
Ne sachant pas d'où viendront les prochaines attaques, les États-Unis veulent avoir tous les systèmes d'armes possibles

Source: L'actualité

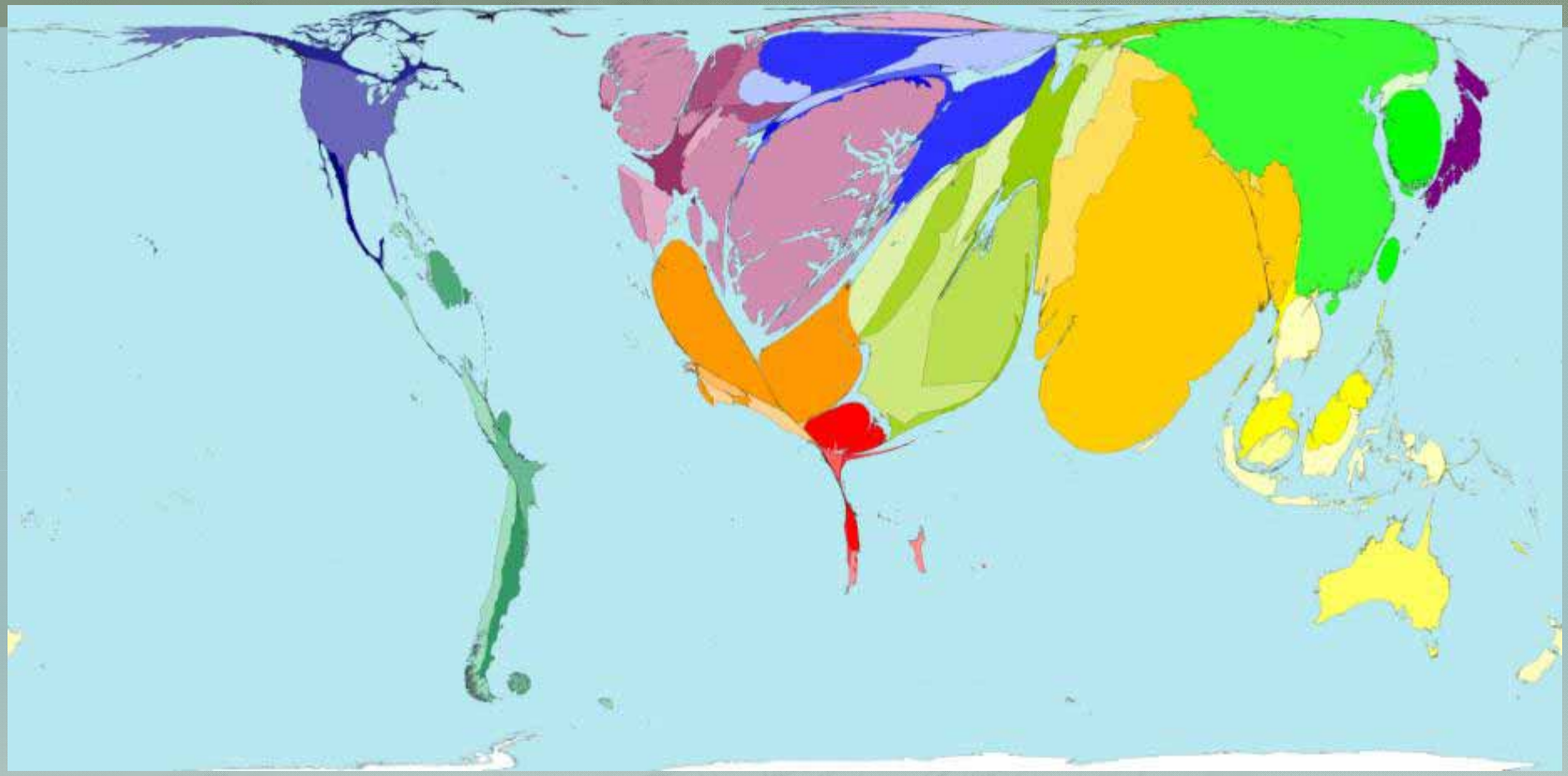
Spending on Small Arms



Arms Exports, 2003



Arms Imports, 2003



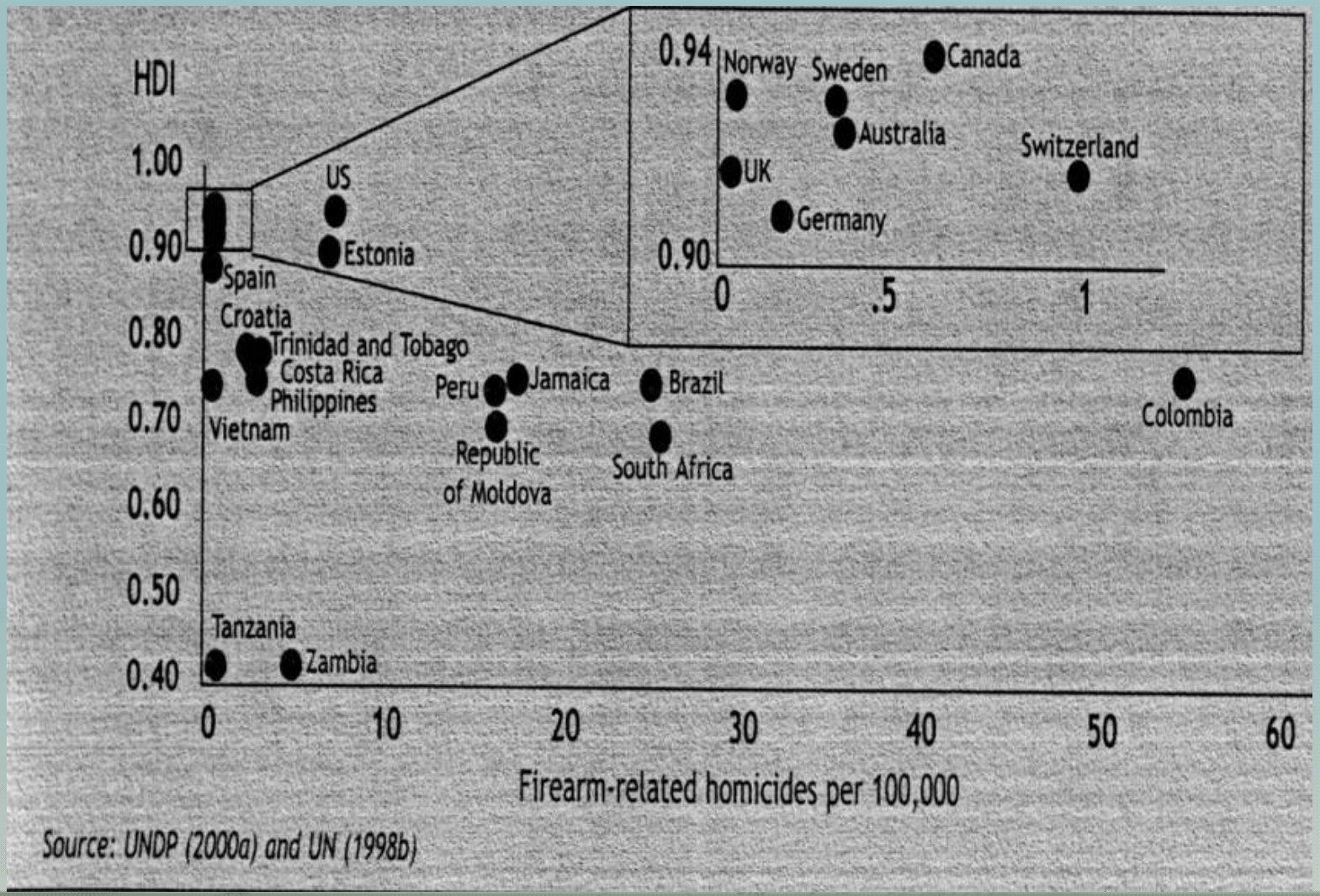
Cost of Global Human Need Programs

	Annual cost in billion dollars	Percent of current military spending
Provide safe clean water	50	6.4
Retire developing nation's debt	30	3.8
Provide shelter	21	2.7
Eliminate starvation and malnourishment	19	2.4
Provide health care	15	1.9
Stabilize population	10.5	1.3
Eliminate illiteracy	5	0.6
TOTAL	**150.5**	**19.1**

Cost of Global Environment Programs

	Annual cost in billion dollars	Percent of current military spending
Provide safe clean water	50	6.4
Retire developing nation's debt	30	3.8
Provide shelter	21	2.7
Eliminate starvation and malnourishment	19	2.4
Provide health care	15	1.9
Stabilize population	10.5	1.3
Eliminate illiteracy	5	0.6
TOTAL	**150.5**	**19.1**

Is There a Relationship between Human Development and Firearm Homicide?



Source: Small Arms Survey, 2001

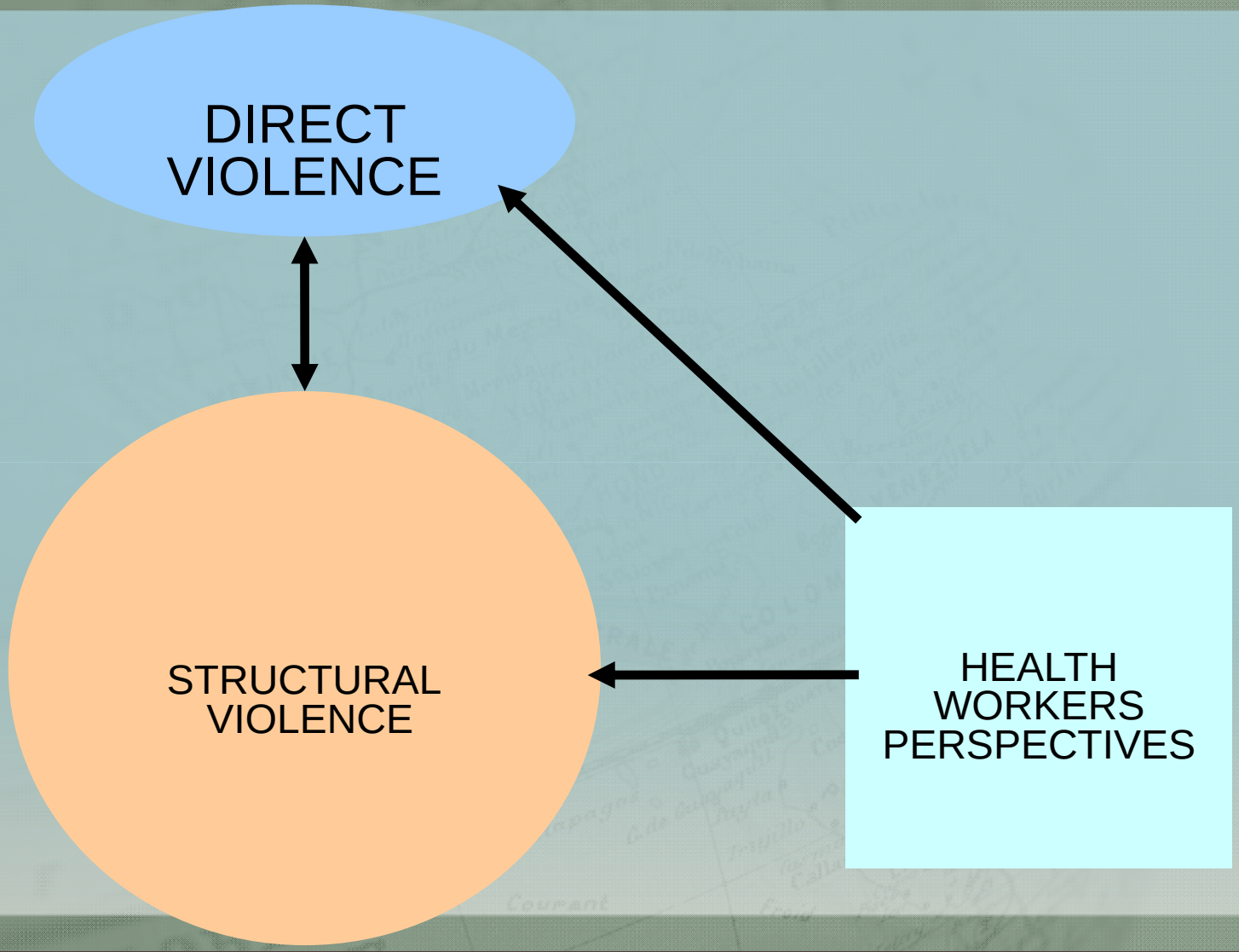
The Human Development Cost of Arms Imports

The human development cost of arms imports[bb]

Many countries continue to import expensive arms, even though they have a long list of more essential items. This is clear from the arms deliveries and orders in the categories covered by the UN's arms register. Some of the choices by developing countries in 1992:

- *China*—purchased 26 combat aircraft from Russia in a deal whose total cost could have provided safe water for one year to 140 million of the 200 million people now without safe water.
- *India*—ordered 20 MiG-29 fighter aircraft from Russia at a cost that could have provided basic education to all the 15 million girls out of school.
- *Iran*—bought two submarines from Russia at a cost that could have provided essential medicines to the whole country many times over; 13% of Iran's population has no access to health care.
- *Republic of Korea*—ordered 28 missiles from the United States for an amount that could have immunised all the 120 000 unimmunised children and provided safe water for three years to the 3·5 million people without safe water.
- *Malaysia*—ordered two warships from the United Kingdom at a cost that could have provided safe water for nearly a quarter century to the five million people without safe water.
- *Nigeria*—purchased 80 battle tanks from the United Kingdom at a cost that could have immunised all of the two million unimmunised children and provided family planning services to nearly 17 million of the more than 20 million couples who lack such services.
- *Pakistan*—ordered 40 Mirage 2000E fighters and three Tripartite aircraft from France at a cost that could have provided safe water for two years for all 55 million people who lack safe water, family planning services for the estimated 20 million couples in need of such services, essential medicines for the nearly 13 million people without access to health care, and basic education for the 12 million children out of primary school.

War and Ill Health



A new paradigm: Development of a Model of PtH activities

Personify the Enemy

- *E.g.*, IPPNW used common professional contacts and friendships during the Cold War to show that the consequences of war for 'real people' on the other side would be as real and catastrophic as they were for 'us' in the 'free world'.

Construction of Super-ordinate Goals

- *E.g.*, Concern for the well-being of their children allowed the warring factions to find a common goal in El Salvador.

A new paradigm: Development of a Model of PtH activities

- Medical professionals participating in organisations such as the ICRC and MSF dare to tread where few outsiders might venture. They assist with or contribute to:
  - Healing of the Individual and Society (physical, psychological, and spiritual)
  - Strengthening of Communities
  - Extending Solidarity
  - Broadening the Concept of Altruism
  - Communication of Knowledge

A new paradigm: Development of a Model of PtH activities

Non-co-operation and Dissent

- *E.g.*, The refusal of medical personnel to participate in unjust war campaigns of their governments, such as Israel in the Occupied Territories.

Diplomacy

- *E.g.*, IPPNW, MSF, UNICEF, ICRC and PAHO

A new paradigm: Development of a Model of PtH activities

Redefinition of the Situation:

- IPPNW turned nuclear war

from a

- Military-political issue

into a

- Medical one:
- Nuclear bombs indiscriminately target civilians
  Disproportionate number of health care personnel
- Traditional medical responses are useless.

Assets of Health Workers (Mechanisms of Peace through Health Work)

- Adapted from MacQueen (Peace and Change and Lancet and Arya in Medicine Conflict and Survival, CMJ and Webel and Galtung).

Assets of Health Workers

Knowledge

- Epidemiology - measuring death and disease and determining causality. Both direct and indirect effects of war and violence.
- Mental health expertise in diagnosis, treatment and rehabilitation of trauma and stress has been invaluable in projects.
- Medical ethics - gaining trust and confidence of parties in conflict include confidentiality, impartiality, beneficence and non-malefiscence.
- Systems Analysis (Analogies from the world of Medicine applicable to other sectors).

Assets of Health Workers

Skills

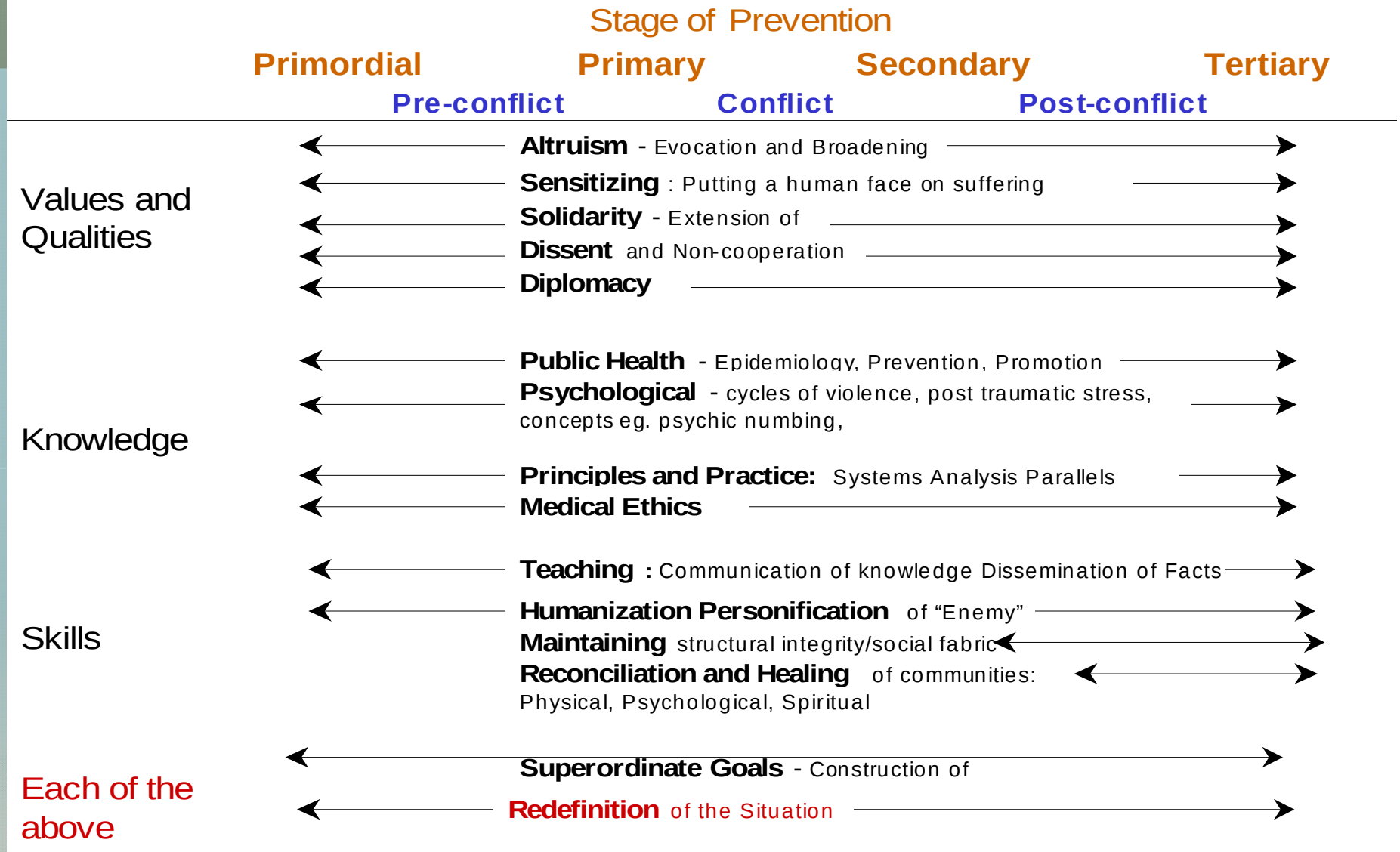
- Strengthening the Social Fabric through Health Care Delivery.
- Reconciliation-Healing of Communities-Physical, Psychological; Social, Spiritual.
- Teaching, Communication of Knowledge, Dissemination of Facts.
- Diplomacy.
- Personification of the Enemy.

Assets of Health Workers

Values

- Altruism (Evocation and Broadening of)
- Sensitizing (Putting a Human Face on Suffering)
- Solidarity (Extension of to those Disempowered)
- Dissent and Non-Cooperation
- Development of Superordinate Goals

Figure 1 Peace through Health Working Model



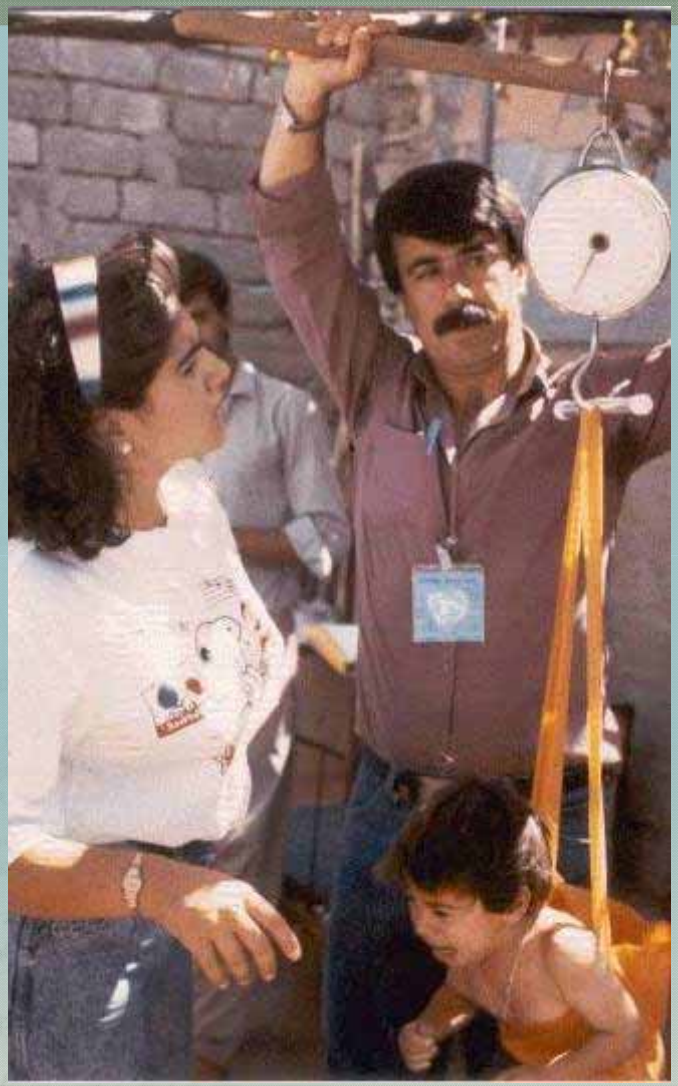
Neil Arya

Table 1: The Health - Peace Connection

	Health	Peace
Definition	physical, mental and social well-being	Integrated, respectful, cooperative, positive relationships, may include spiritual, psychological and emotional elements
Not merely	absence of disease and infirmity	absence of war or violence
Further	fundamental right or resource	a right for children
Determinants	peace, shelter, education, food, income, stable ecosystem, sustainable resources, social justice, equity	biological, social, cultural, environmental, behavioural, economic, political factors
Conflict Transformation/Promotion of Health	process of enabling people to increase control over, and to improve their health through advocacy	involves systemic change, catalysing changes at deepest level of beliefs, assumptions and values as well as behaviour and structures

Peace Through Health Field Work

Harvard International Study Team Iraq, 1991



War and Sanctions Effects on Child Mortality, Iraq

Vol. 327 No. 13 THE GULF WAR AND PEDIATRIC MORTALITY IN IRAQ — ASCHERIO ET AL. 931
THE NEW ENGLAND JOURNAL OF MEDICINE Sept. 24, 1992

SPECIAL ARTICLE

EFFECT OF THE GULF WAR ON INFANT AND CHILD MORTALITY IN IRAQ

ALBERTO ASCHERIO, M.D., D.P.H., ROBERT CHASE, M.D., C.C.F.P., TIM COTÉ, M.D., M.P.H.,
GODELIEAVE DEHAES, M.D., ERIC HOSKINS, M.D., JILALI LAAOUEJ, M.D.,
MEGAN PASSEY, M.B., B.S., M.P.H., SALEH QADERI, M.B., B.S.,
SAHER SHUQAIDEF, M.B., B.S., DR.P.H., MARY C. SMITH, M.SC., AND SARAH ZAIDI, M.SC.

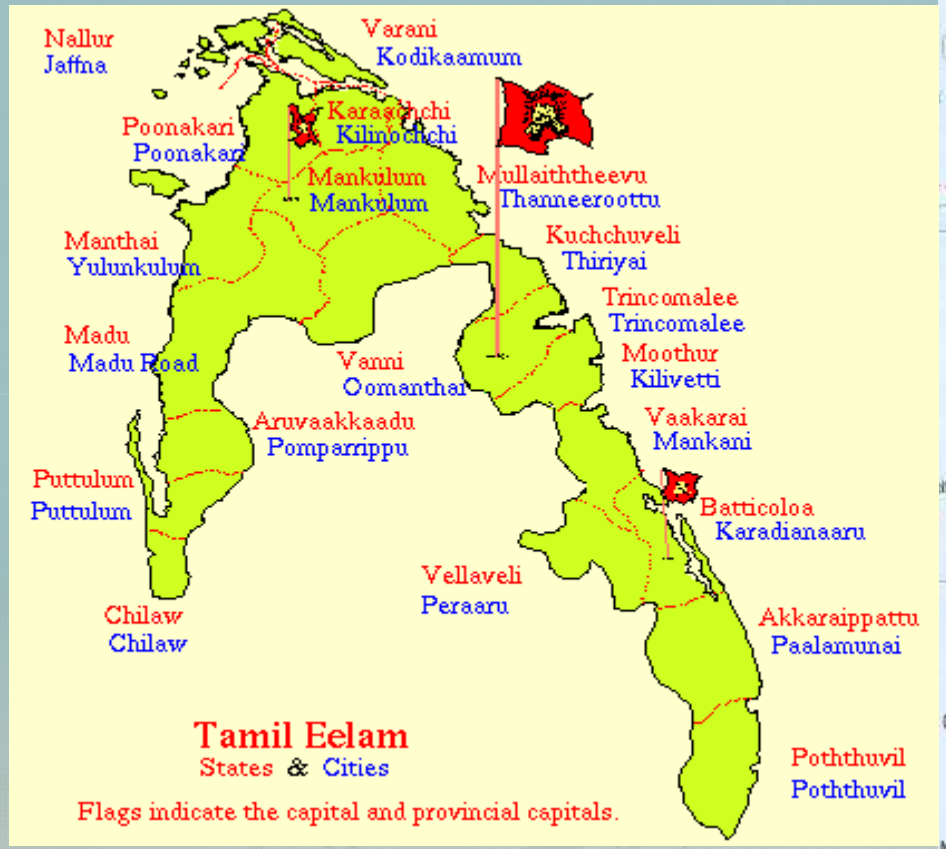
Abstract *Background.* Increased malnutrition and morbidity among Iraqi children after the onset of the Persian Gulf war have been reported by several fact-finding missions. The magnitude of the effect of the war and the economic embargo on child mortality remains uncertain, however.

Methods. We conducted a survey of 271 clusters of 25 to 30 households each, chosen as a representative sample of the Iraqi population. The households were selected and the interviews conducted by an international team of public health professionals independent of Iraqi authorities. In each household all women 15 to 49 years of age were interviewed, and the dates of birth and death of all children born on or after January 1, 1985, were recorded.

Results. The study population included 16,076 children, 768 of whom died during the period surveyed (January 1, 1985, to August 31, 1991). The age-adjusted relative mortality for the period after the war began, as compared with the period before the war, was 3.2 (95 percent confidence interval, 2.8 to 3.7). No material change in the relative risk was observed after adjustment for region of residence, maternal education, and maternal age. The increase in mortality after the onset of the war was higher among children 1 to less than 12 months old (relative risk, 4.1; 95 percent confidence interval, 3.3 to 5.2) and among those 12 to less than 60 months old (relative risk, 3.8; 95 percent confidence interval, 2.6 to 5.4) than among those less than 1 month old (relative risk, 1.8; 95 percent confidence interval, 1.4 to 2.4). The association between the war and mortality was stronger in northern Iraq (relative risk, 5.3) and southern Iraq (relative risk, 3.4) than in the central areas (relative risk, 1.9) or in Baghdad (relative risk, 1.7).

Conclusions. These results provide strong evidence that the Gulf war and trade sanctions caused a threefold increase in mortality among Iraqi children under five years of age. We estimate that an excess of more than 46,900 children died between January and August 1991. (N Engl J Med 1992;327:931-6.)

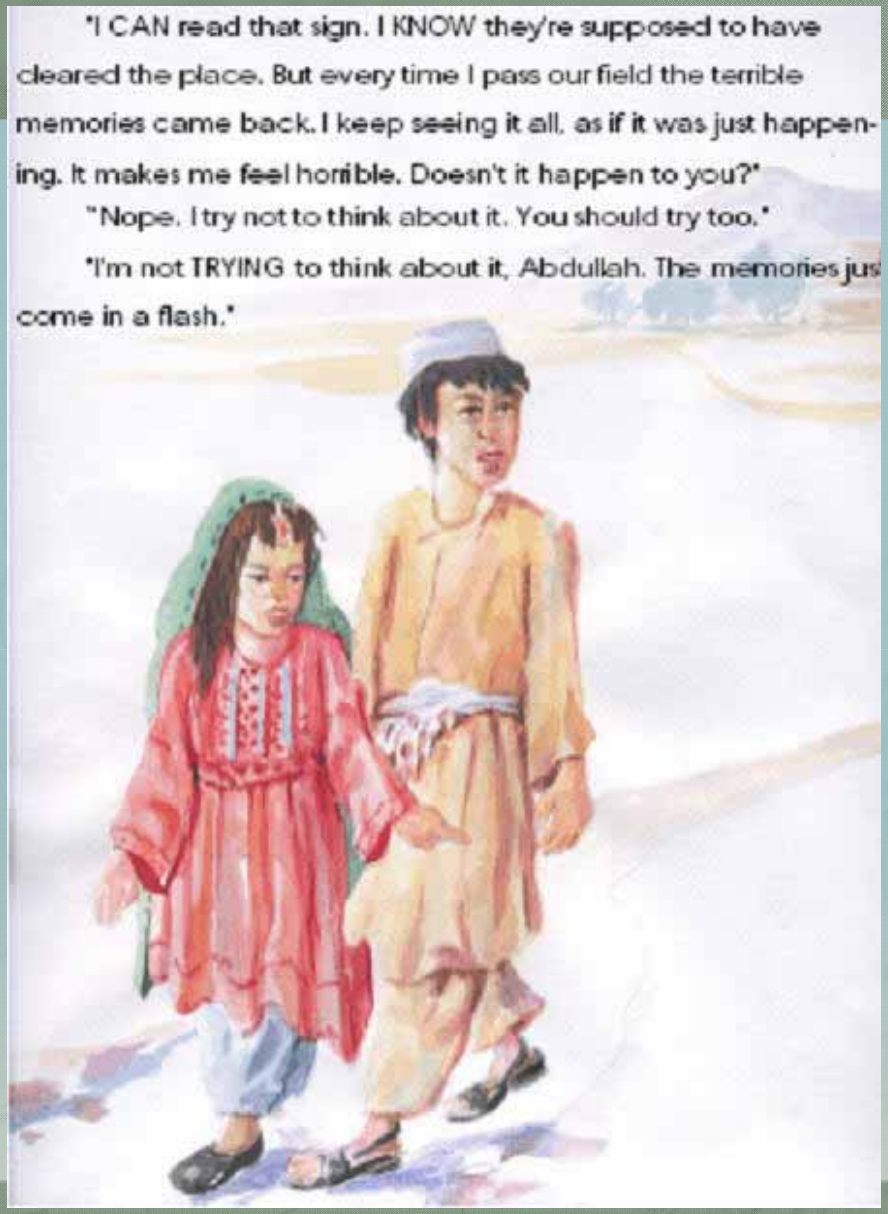
Health Reach Sri Lanka study sites: History of Local Conflict



Butterfly Garden

Butterfly Garden

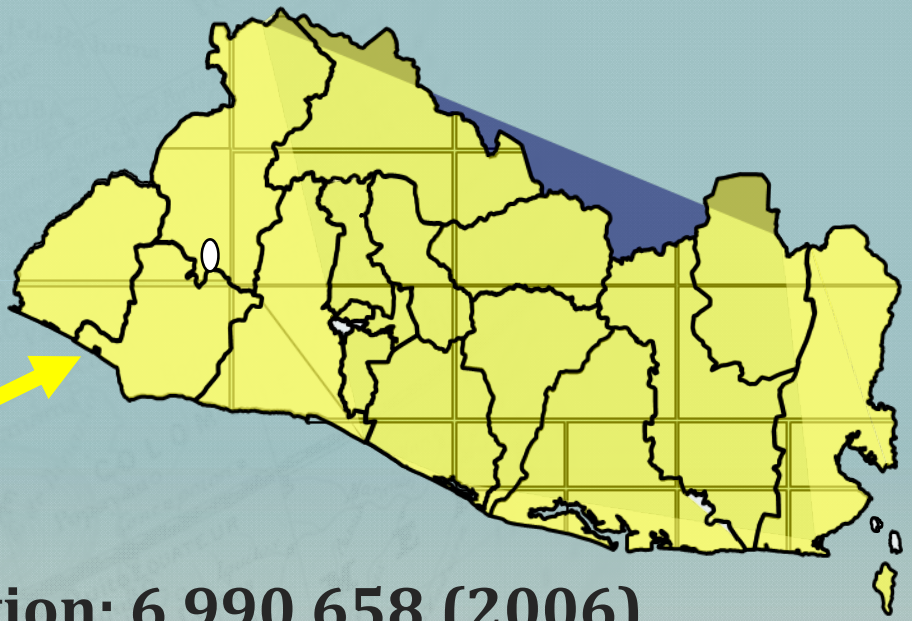
Afghan Storybook



Afghan Puppet Show

Living Under Occupation

El Salvador



Population: 6.990.658 (2006)
Area : 20.742 sq Km
Population Density: 337 persons/sq km

IPPNW, El Salvador

PEACE through HEALTH

How health professionals can work for a less violent world

Akshaya Neil Arya
Joanna Santa Barbara

Kumarian Press, Inc.

Peace through Health: How Health Professionals Work for a Less Violent World.

- **Section A: Basic Concepts in Peace through Health**
- Chapter 1. Introduction.
- Chapter 2. History of Peace through Health.
- Chapter 3. Multi-track Peacework.
- Chapter 4. Mechanisms of Peace through Health

- **Section B: War and its Human Health Impact**
- Chapter 5. The Health Effects of War.
- Chapter 6. Future Wars.

- **Section C: Values and Ethics in Peace through Health**
- Chapter 7: What Values Underlie our Actions?
- Chapter 8. Human Rights.

Peace through Health: How Health Professionals Work for a Less Violent World

- Chapter 9. Medical Ethics.
- Chapter 10. Respect for Culture.
- Chapter 11. Speaking Truth to Power: South Africa.

- **Section D: Preparing to Act on Peace through Health.**
- Chapter 12. Analysing a Peace through Health Problem.
- Chapter 13. Tools for Peace through Health Work:
- Chapter 14. Dealing with Conflict.
- Chapter15. Epidemiology

  Case Studies.

Peace through Health: How Health Professionals Work for a Less Violent World

- Chapter 16. Primary Prevention.
  - 16a. Preventing War by Weapons Limitation.
  - 16b. Opposing Gun Violence in the USA
  - 16c. Health Professional as Activist. Helen Caldicott
  - 16d. Acting on Human rights in Nepal.
  - 16e. Peace Education as Primary Prevention.
- Chapter 17. Secondary Prevention.
  - 17a. Humanitarian Ceasefires.
  - 17b. The Role of Medical
  - 17c. Healing Across the Divides:
  - 17d. A Model for Improving Mental Health in Palestine
  - 17e. The Iraq Body Count Project –
  - 17f. Doctor as Witness: Opposing Economic Sanctions on Iraq (1990-2003).
- Chapter 18. Tertiary Prevention.
  - 18a. Psychosocial Healing.
  - 18b Community Based Rehabilitation.
  - 18c Butterfly Garden - Healing War-Affected Children in Sri Lanka.
  - 18d. The World Health Organization:
  - Health as a Bridge for Peace
- **Section F:**
- Chapter 19. Evaluation.

Peace through Health: How Health Professionals Work for a Less Violent World

- **Section G: Expanding the Bounds.**
- Chapter 20. Expanding the Bounds.
- Chapter 21. Social Injustice and the Responsibility of Healthcare Workers.
- Chapter 22. Living in Harmony with the Earth and with Each Other.
- **Section H: Special Topics**
- Chapter 23. A Role for Emergency Humanitarian Aid Organizations.
- Chapter 24. Students.
- Chapter 25. Technology and Activism.
- Chapter 26. Educating Health Professionals.
- **Conclusions**.
- Chapter 27. Looking Ahead.

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