WHO HAS BIOLOGICAL WEAPONS?

- Algeria
- Canada
- China
- Cuba
- Egypt
- Ethiopia
- France
- Germany
- India
- Iran
- **Iraq**
- Israel
- Italy
- Japan
- Libya
- Myanmar
- N. Korea
- Pakistan
- **Former Soviet Union**
- South Africa
- S. Korea
- Sudan
- Syria
- Taiwan
- U.K
- **USA**
- Viet Nam
- Yugoslavia

Agents of Biological Warfare

- Bacterial Agents
  - ***Anthrax***
  - **Brucellosis**
  - **Cholera**
  - **Plague (Pneumonic)**
  - **Tularemia**
  - **Q Fever**
- Viruses
  - ***Smallpox***
  - **VEE**
  - **VHF**
- Biological Toxins
  - **Botulinum**
  - **Staph Entero-B**
  - **Ricin**

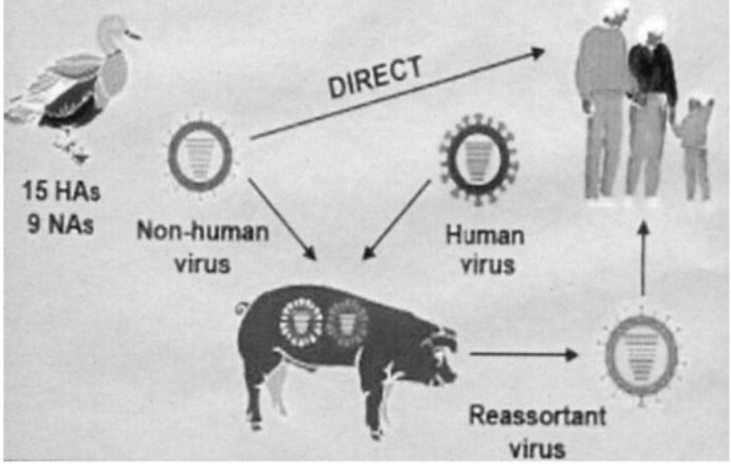
	Agents	Disease	Route of infection	Possible releas
Bacteria	*Ba. anthracis*	Anthrax	Aerosol	Spores
	Y. pestis	Plague	Aerosol	Vegetative cell
	Br. melitensis	Brucellosis	Aerosol	Vegetative cell
	Br. abortus			
	Bu. mallei	Glanders	Aerosol	Vegetative cell
	Bu. pseudomallei	Melioidosis	Aerosol	Vegetative cell
Viruses	Variola virus	Smallpox	Aerosol	Virus particles
	Ebola virus	Ebola hemorrhagic fever	Aerosol	Virus particles
	Marburg virus	Marburg hemorrhagic fever	Aerosol	Virus particles
Toxins	*C. botulinum*	Botulism	Ingestion food/water	Toxin
	Staphylococcus aureus	Staphylococcal enterotoxin type B (SEB)	Food/water	Toxin
	Ricin (plant)	Ricin toxin	Food/water	Toxin
	Trichothecene (fungus)	Trichothecene T2 toxin	Food/water	Toxin

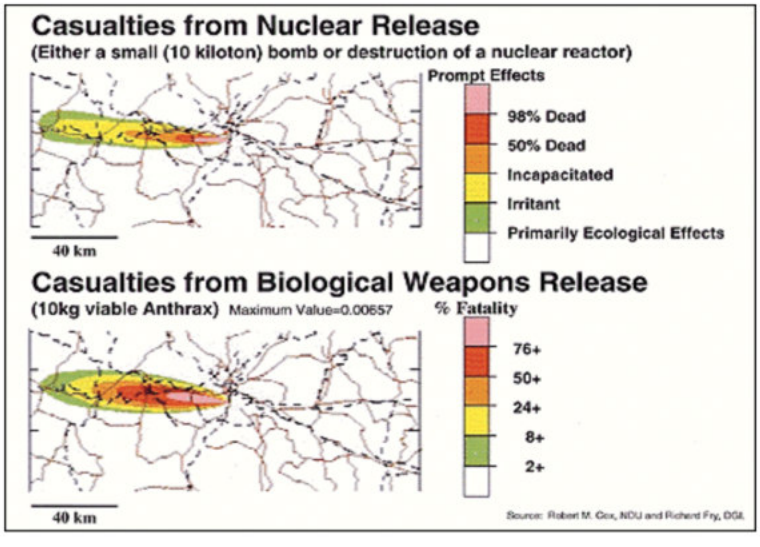
Biological Weapons Being Researched and Developed

NATURAL STRAINS

- Ebola
- Bolivian hemorrhagic fever
- Argentinean hemorrhagic fever
- Melioidosis
- Lassa fever
- Japanese encephalitis
- Russian spring-summer encephalitis

Mechanisms of Influenza Virus Antigenic "Shift"





- **Cost Comparison**
- To Affect 1 Square Kilometer of Area

- Conventional Weapons	$2000
- Nuclear Weapons	$ 800
- Chemical Weapons	$ 600
- Biological Weapons	$ 1

Biologics are the "Poor Man's Atomic Bomb"