The malicious use of pathogen microorganisms is, nowadays, a real threat but terribly underestimated. However, it is not a novelty, since the humanity has used the biowarfare for centuries. Currently, the rapid development of biotechnology makes possible the creation or modification of pathogens and their transformation into mass destruction weapons.

**HISTORY OF BIOWARFARE**

- approx. 1500 BC: First episode known of biowarfare, by Hittites
- Assyrians, Greeks and Romans used fungi and human feces during sieges.
- 1340: The Tartars triggered the Black Death in Europe, after using infected carcasses as a weapon.
- XVI-XVIIIth centuries: Spanish, French and British used smallpox against American indigenes.
- XXth century: The great powers create programs for developing biological weapons. Japanese and the Soviets used them during World War II.
- 1975: Prohibition of biological weapons. USSR ignored the convention and continued its development program.
- 1979: A escape of Bacillus anthracis spores in a Soviet factory caused at least 60 deaths.
- 2001: Various letters with spores of anthrax were addressed to journalists and several restaurants in Washington, D.C. at least 22 people were ill. No deaths.

**HISTORY OF BIOTERRORISM**

- 1984: An Hindu sect contaminated with Salmonella typhimurium several restaurants in Oregon, USA. 751 persons became ill. No deaths.
- 1995: A Buddhist sect released Bacillus anthracis spores in Tokyo. They committed the mistake of using a non-virulent strain, therefore had no effect.
- 2001: Various letters with spores of Bacillus anthracis were addressed to journalists and senators in USA. 22 persons became ill, of whom 5 died.

**CONCLUSIONS AND EXPECTATIONS**

- Microorganisms have shown their capacity to kill millions of people in a short time. The panic that could create a biological attack can be much greater than that of a conventional attack.
- A bioterrorist act is almost inevitable, it can occur at any time.
- It is necessary to make awareness in both political and health authorities.
- Preparation is essential at all levels: scientific, medical, pharmacological, economic and military or security forces.

**HOW IS A BIOLOGICAL WEAPON?**

<table>
<thead>
<tr>
<th>Category</th>
<th>Agents</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Bacillus anthracis</td>
<td>Easily disseminated or spread person-to-person</td>
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<tr>
<td></td>
<td>Clostridium botulinum toxins</td>
<td>Highly lethal</td>
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<tr>
<td></td>
<td>Neisseria</td>
<td>Serious public health effects</td>
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<td></td>
<td>Francisella tularensis</td>
<td>Can cause panic and social disruption</td>
</tr>
<tr>
<td></td>
<td>Smallpox virus</td>
<td>Highly contagious</td>
</tr>
<tr>
<td></td>
<td>Hemorrhagic fever viruses (Ebola, Marburg, Lassa, yellow fever...)</td>
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</tr>
<tr>
<td>B</td>
<td>Bacillus spp.</td>
<td>Modestly easy to disseminate</td>
</tr>
<tr>
<td></td>
<td>Epsilon toxin of Clostridium perfringens</td>
<td>Moderate mortality</td>
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<td></td>
<td>Burkholderia mallei and B.pseudomallei</td>
<td>Difficult diagnosis</td>
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<td></td>
<td>Gramydia potosi</td>
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<td></td>
<td>Cowella bunun</td>
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<tr>
<td></td>
<td>Staphylococcal enterotoxin B</td>
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<tr>
<td></td>
<td>Bacillus anthracis</td>
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<td></td>
<td>Water safety (e.g. Vibrio cholerae) or food safety threats</td>
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<tr>
<td></td>
<td>(e.g. Salmonella, Shigella)</td>
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<td></td>
<td>Listeria monocytogenes</td>
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</tbody>
</table>

**IS POSSIBLE A BIOLOGICAL ATTEMPT?**

- In fact it is practically inevitable. Most pathogens can be found in the environment and it is not difficult or expensive to disperse them.
- In 2001 a group of microbiologists developed a simulated biological weapon with only 1.5 million dollars. The attempt of the same year was carried out by a laboratory technician of an Army Research center.

**SMALLPOX AS A WEAPON**

- It is the deadliest disease in history, and has a great capacity of cause panic.
- Currently eradicated, which carries some risks: lack of immunity and vaccination, little information, inexperienced doctors in diagnoses and treatment.
- High mortality (about 30%) and efficient person-to-person transmission.
- There are two legal stocks, but it is suspected that there may be more.
- USA and the EU have developed response strategies, but there are few vaccines and there is no effective treatment.

**References**