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Università e  
Ricerca Scientifica  
e Tecnologica

Ministero dell'Istruzione dell'Università e della Ricerca

# XV Settimana della Cultura Scientifica e Tecnologica

*Introduzione alla relazione del Prof. Jim McLauchlin*



## **Bioterrorism: threats and prevention**



*Facoltà di Scienze del Benessere – Dipartimento di Scienze per la Salute*

# Le potenzialità del Bioterrorismo

- Semplice e poco costoso
- Difficile difendersi
- Disponibilità di conoscenze
- Effetti devastanti
- Panico nella popolazione

Watch for these symptoms						BIOTERRORIST AGENTS	
Disease	Signs & Symptoms	Incubation Time (Range)	Person-to-Person Transmission	Isolation	Diagnosis	Prevention	Treatment for Adults
<b>Anthrax</b> Anthrax spores	 <p>Two to five days after exposure, there is a prodromal phase with flu-like symptoms, including fever, malaise, and muscle aches. Swelling and redness at the site of exposure may occur. Symptoms may worsen over time.</p>	1 to 6 days (range 1 to 10 days)	None	Isolation Precautions	Diagnosis is by culture of spores and DNA analysis. Spores are not visible on Gram stain. Spores are not visible on Gram stain.	Prevention is by vaccination. Vaccination is not available for the general public. Spores are not visible on Gram stain.	Antibiotics are used to treat anthrax. Treatment is most effective if started early. Spores are not visible on Gram stain.
<b>B. Cerebralis</b>	 <p>Spores are found in soil and water. Symptoms include fever, headache, and muscle aches. Spores are not visible on Gram stain.</p>	1 to 10 days	Direct contact with soil or water	Contact Precautions	Diagnosis is by culture of spores and DNA analysis. Spores are not visible on Gram stain.	Prevention is by vaccination. Vaccination is not available for the general public. Spores are not visible on Gram stain.	Antibiotics are used to treat B. Cerebralis. Treatment is most effective if started early. Spores are not visible on Gram stain.
<b>C. Botulinum (all)</b>	 <p>Spores are found in soil and water. Symptoms include muscle weakness and paralysis. Spores are not visible on Gram stain.</p>	1 to 7 days	None	Isolation Precautions	Diagnosis is by culture of spores and DNA analysis. Spores are not visible on Gram stain.	Prevention is by vaccination. Vaccination is not available for the general public. Spores are not visible on Gram stain.	Antitoxins are used to treat C. Botulinum. Treatment is most effective if started early. Spores are not visible on Gram stain.
<b>Botulinum</b> Botulinum toxin	 <p>Spores are found in soil and water. Symptoms include muscle weakness and paralysis. Spores are not visible on Gram stain.</p>	1 to 7 days	None	Isolation Precautions	Diagnosis is by culture of spores and DNA analysis. Spores are not visible on Gram stain.	Prevention is by vaccination. Vaccination is not available for the general public. Spores are not visible on Gram stain.	Antitoxins are used to treat Botulinum. Treatment is most effective if started early. Spores are not visible on Gram stain.
<b>Francisella</b> Francisella tularensis	 <p>Spores are found in soil and water. Symptoms include fever, headache, and muscle aches. Spores are not visible on Gram stain.</p>	3 to 5 days (range 2 to 10 days)	Yes, direct contact	Isolation Precautions	Diagnosis is by culture of spores and DNA analysis. Spores are not visible on Gram stain.	Prevention is by vaccination. Vaccination is not available for the general public. Spores are not visible on Gram stain.	Antibiotics are used to treat Francisella. Treatment is most effective if started early. Spores are not visible on Gram stain.
<b>Synovium</b> Synovium	 <p>Spores are found in soil and water. Symptoms include fever, headache, and muscle aches. Spores are not visible on Gram stain.</p>	1 to 10 days	None	Isolation Precautions	Diagnosis is by culture of spores and DNA analysis. Spores are not visible on Gram stain.	Prevention is by vaccination. Vaccination is not available for the general public. Spores are not visible on Gram stain.	Antibiotics are used to treat Synovium. Treatment is most effective if started early. Spores are not visible on Gram stain.



# Tipologie di attacco deliberato

## ● EVIDENTE

- Falsi allarmi
- Reale
- Riconoscimento precoce
- Forze dell'Ordine ed altre autorità

## ● SEGRETO

- Riconoscimento tardivo
- Effetti dell'esposizione e riconoscimento da parte del personale sanitario



# Risposte in caso di attacco deliberato

## ● EVIDENTE

- Controllo dell'area
- Identificazione dell'agente
- Fornire informazioni alla popolazione

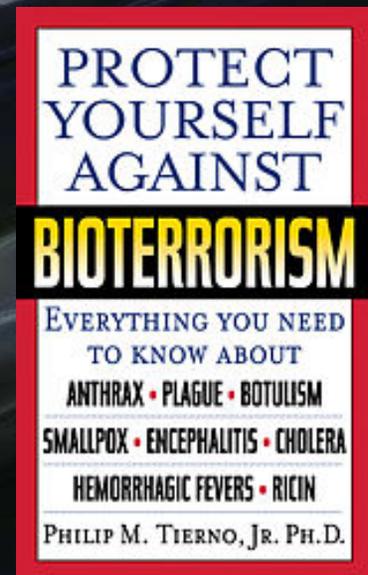
## ● SEGRETO

- Consapevolezza piena dell'evento
- All'inizio simile ad altre risposte di sanità pubblica
- Identificazione degli aspetti insoliti



# Prevenzione

- Controlli di polizia e di altre autorità
- Formazione degli operatori sanitari
- Vaccinazione e profilassi
- Attività di “Intelligence” e vigilanza
- Educazione e formazione



# Antrace: attacco negli USA, 2001

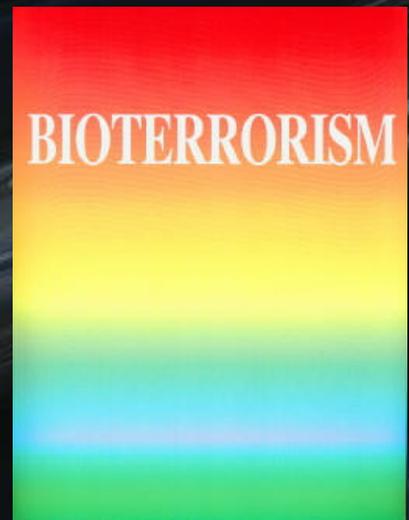
- 22 casi
- Ottobre – Dicembre 2001
  - 11 con manifestazione cutanea
  - 11 con inalazione (4 morti)
- Tutti causati dallo stesso ceppo di *Bacillus anthracis*
- Un solo caso aggiuntivo con manifestazione cutanea acquisito in laboratorio



# Antrace: attacco negli USA, 2001

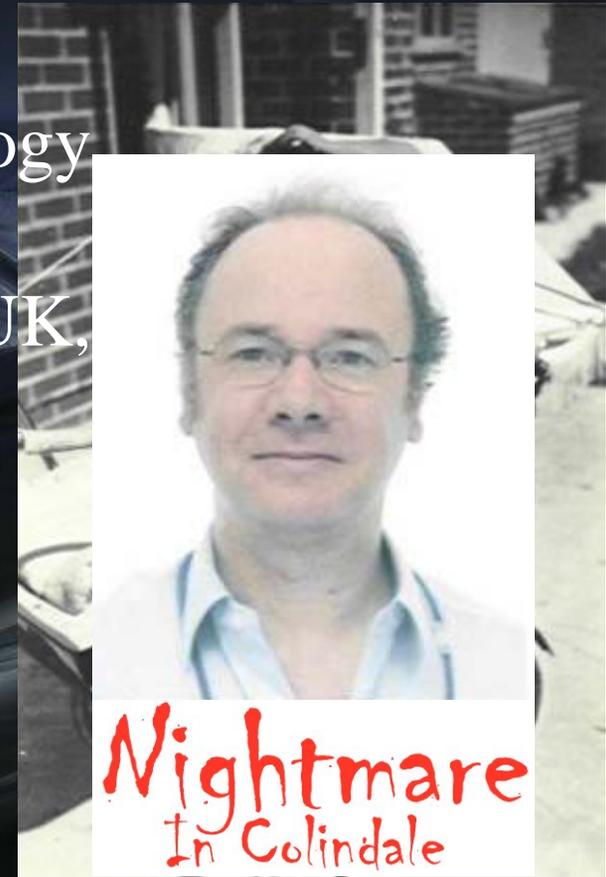
## ● *Un problema 'semplice'!*

- Pochi casi
- Un solo agente usato
- Nessun coinvolgimento di altre specie animali
- Nessun caso al di fuori degli USA
- Nessun attacco ciberterroristico



# Jim McLauchlin

- Microbiologo, in servizio presso la “Health Protection Agency” dal 1978
- Direttore del “Food Safety Microbiology Laboratory” Department of Gastrointestinal Infections, London, UK, con a disposizione uno staff di 45 collaboratori



- Si occupa
  - della ricerca e caratterizzazione molecolare di patogeni trasmissione alimentare ed idrica
  - della predisposizione di attività di pronto intervento in caso di attacco bioterroristico
- E' autore di oltre 180 lavori scientifici
- E' honorary Senior Lecturer alla "University of Central Lancashire" ed associato della Facoltà di Medicina Veterinaria dello University College di Dublino

