

# Application of Triage Guidelines in Response to Bioterrorism Threats: Colorado Perspective

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# To Triage or not to Triage

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- *Lessons from CLIA, EPA, CAP  
e.g., establishment of criteria for  
rejection of unsuitable specimens*
- *Military lessons:  
Battlefield Medical Triage*
- *Is it different for bioterrorism??*

# PHLs experience: Anthrax 2001

Specimen	Protocol?	#PHLs (%) N=45	Apply success	No (%)
Clinical	yes	35 (78%)	yes	31 (89%)
			no	4 (11%)
	no	10 (22%)		
Environ.	yes	36 (80%)	yes	25 (69%)
			no	11 (31%)
	no	9 (20%)		

# PHLs hardship: Anthrax 2001

Workload	No(%) N=45	Protocol available	Number PHLs (%)
Overwhelming	13 (29%)	yes	3 (23%)
		no	10 (77%)
Difficult	17 (38%)	yes	13 (76%)
		no	4 (24%)
Short-term surge	14 (31%)	yes	12 (86%)
		no	2 (14%)
Routine	1 (2%)	yes	-
		no	

# Response to Bioterrorism: Triage-definition

- *“ a system to maximize benefit from the use of limited facilities for casualties by giving full treatment to those who will survive with timely treatment and denying it to those who will not survive or those who will survive without it.”*

## Response to Bioterrorism: Specimen Triage-definition

- *“ a system to maximize benefit from the use of limited laboratory testing capacity by testing specimens which will provide the most useful information for bioterrorism response and delaying or denying testing for specimens that will not.”*

Response to Bioterrorism:  
Human Specimen Triage-High priority

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*Human specimens and culture isolates from cases of illness with signs and symptoms judged by a clinician or epidemiologist as consistent with infection/intoxication due to a recognized BT agent.*

# Response to Bioterrorism: Human Specimen Triage-High priority

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*Response:*

*Perform testing immediately on receipt of specimen (24/7)-- multiple methods including PCR, DFA, culture, TRF*

# Response to Bioterrorism: Specimen Triage-Intermediate priority

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*Human specimens from cases of illness with a low possibility of causation by a BT agent, i.e., ill patient but clinical picture not typical for BT agent.*

Response to Bioterrorism:  
Human Specimen Triage  
-Intermediate priority

*Response:*

*Perform testing—usually culture--  
on the next regular business day*

# Response to Bioterrorism: Human Specimen Triage-Low priority

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*Human specimens from patients  
with no discernible illness or  
specimen obtained for  
epidemiologic studies*

# Response to Bioterrorism: Human Specimen Triage-Low priority

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## *Response:*

*By agreement with a responsible public health official, perform testing for epidemiologic studies on a mutually-agreeable schedule.*

# Response to Bioterrorism: Environmental Specimen Triage

-High priority

*Environmental specimens collected from a scene or associated with an event that is deemed a credible threat for a named agent by an FBI agent in concert with local law enforcement.*

# Response to Bioterrorism: Environmental Specimen Triage

-High priority

*Response:*

*Perform testing immediately on receipt of specimen (24/7)—PCR, DFA, culture, TRF*

Response to Bioterrorism:  
Environmental Specimen Triage  
-Intermediate priority

*Environmental specimens associated with a criminal act (felony menacing, hoax) for which a specific agent is named, but is not a credible threat.*

Response to Bioterrorism:  
Environmental Specimen Triage  
-Intermediate priority

*Response:*

*Perform testing—usually culture--  
on the next regular business day*

Response to Bioterrorism:  
Environmental Specimen Triage  
-Low priority

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*Environmental specimens  
deemed non-credible threats.*

Response to Bioterrorism:  
Environmental Specimen Triage  
-Low priority

*Response: offer to test specimen or refer submitters to private sector laboratories who are offering testing for threat agent or identification of substance on a fee-for-service basis*

# Anthrax Investigation-2004

- *April 2004 a die-off of 4 cattle occurred in SE Colorado*
- *A 38-yr-old worker at the ranch was seen by a local physician—A lesion on the forearm was observed*
- *Most recent case of livestock anthrax was noted within 10 miles of this location, nearly 20 years earlier*

# View of Case Lesion



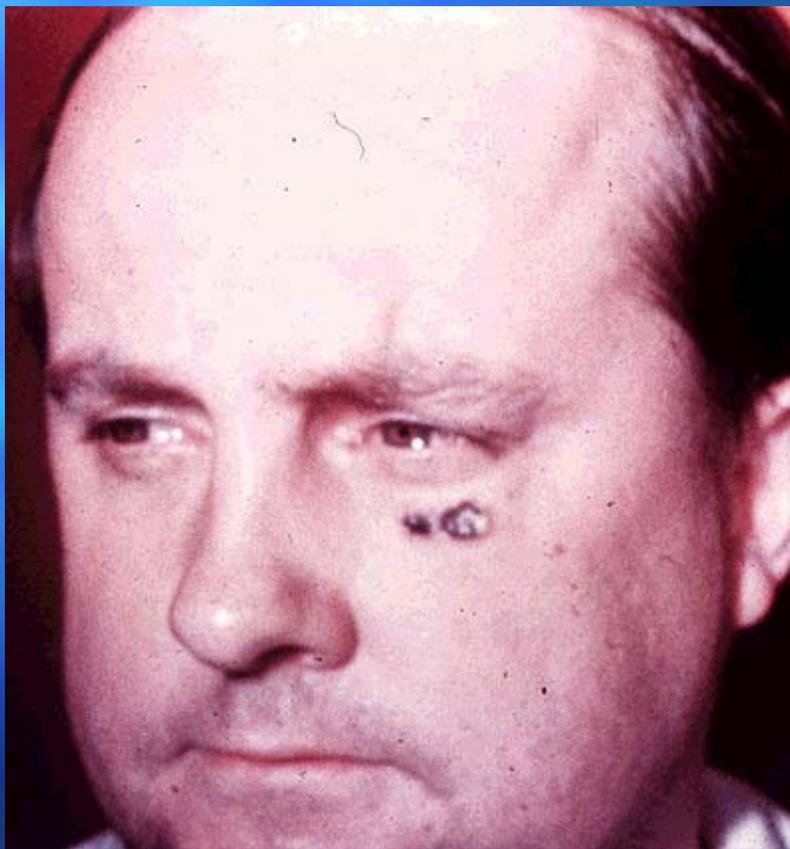
# View of Another Anthrax Lesion



and another Anthrax lesion



# View of yet another Anthrax lesion



# Another look at Case Lesion



# Colorado PHL response

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- *Regional Epidemiologist delivered lesion swabs from the woman and blood, nasal, anal & soil specimens from two of the cattle*
- *PCR, TRF, & DFR results < 4 hrs, Culture & Phage lysis results <24 hrs after receipt of specimen*
- *All results were negative for anthrax*

# Summary

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- *Protocol for acceptance of specimens (including triage) improves specimen quality and reduces marginal specimens*
- *Surge capacity increased*
- *Stakeholder buy-in essential*