

Responding to the Terrorist CBRN Threat: “Preparation or Panic”

First Bite: Utilizing Medical Surveillance to Identify CB Threats



Andrew Behar

President

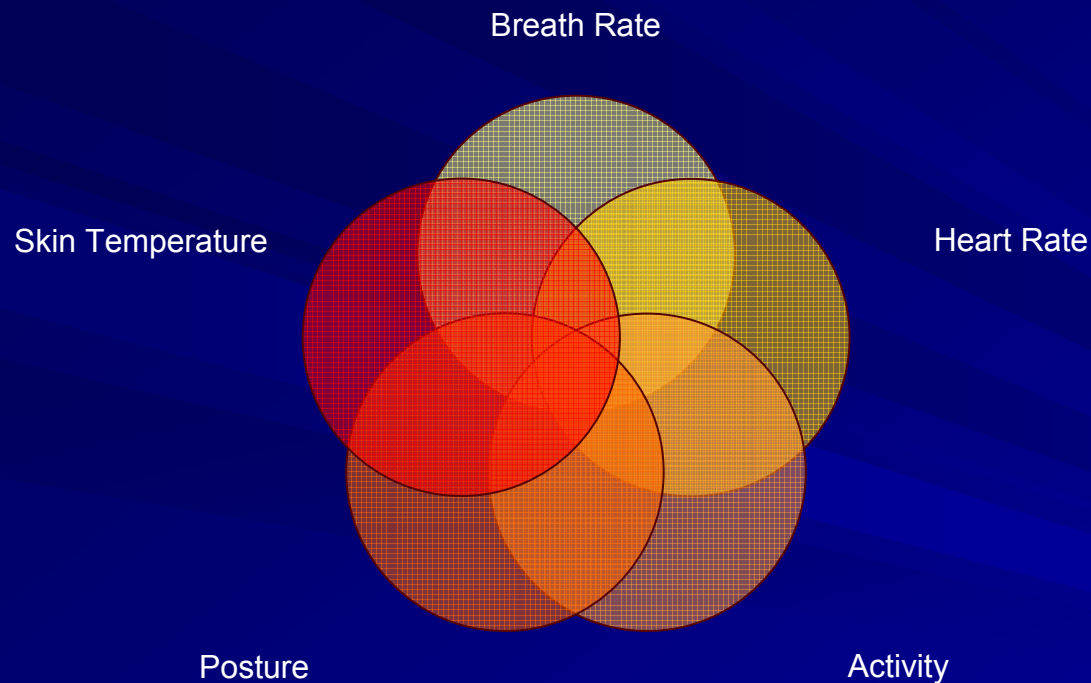
VivoMetrics Government Services



First Bite

- Physiologic signature at the first moment of exposure to a chemical or biological agent
 - Anthrax, Small Pox, Sarin, VX, Plague, Ebola, Botulinum Toxin and other toxic agents.
- This would present as changes in respiratory, cardiac, posture, activity and temperature
- Presently there is no correlated data showing physiologic reaction to CB exposure
 - Animal studies need to be done to provide correlates to human reactions.
 - Basic understanding of physiologic responses can provide an initial deployable system.

First Bite Signature



VivoCommand - View

File Tools Help

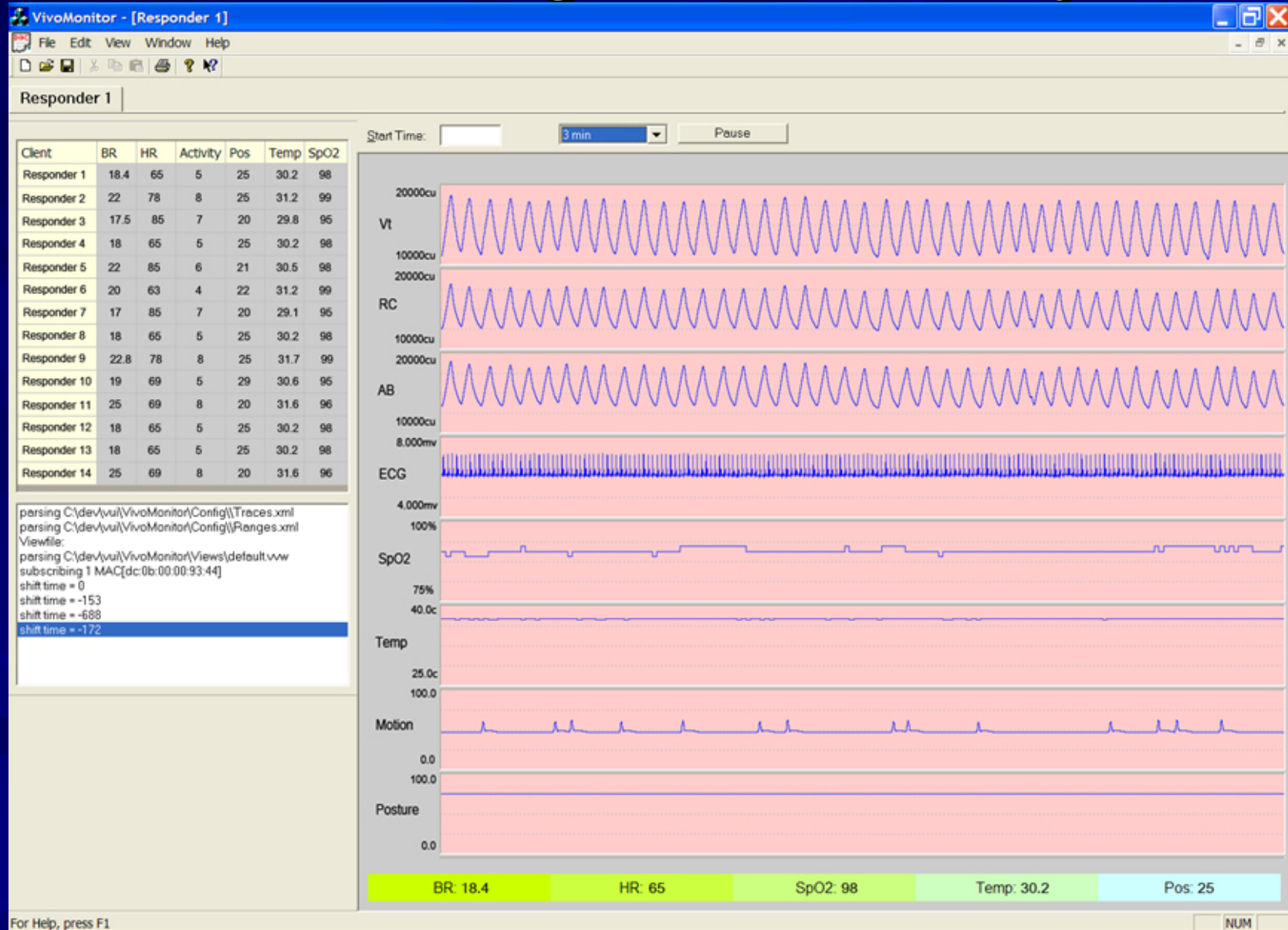
Responders

Responder	BR	HR	Activity	Posture	Temp	Duration	Signal
S Brooks	48	69	48	Up	98.4	00:00:50	98%
A Barnabus	35	78	48	Up	98.1	00:00:49	98%
H Constantine	36	71	54	Up	99.3	00:00:48	98%
M Giles	39	76	62	Up	98.7	00:00:47	98%
R Roden	46	68	51	Up	98.0	00:00:46	98%
D Peters	41	69	52	Up	99.1	00:00:45	98%
A Baker	38	56	54	Up	98.5	00:00:44	98%
S Hope	46	64	52	Up	98.0	00:00:43	98%
L Smith	32	74	50	Up	98.4	00:00:42	98%
J Daniels	41	69	47	Up	98.6	00:00:41	98%
R Stevens	37	67	52	Up	98.9	00:00:40	98%
T Simpson	36	66	54	Up	98.8	00:00:39	98%
J Perkins	47	78	51	Up	97.9	00:00:38	98%
T Cohn	34	74	46	Up	98.8	00:00:37	98%
B Stern	38	75	54	Up	98.2	00:00:36	98%
L Johnston	37	65	44	Up	99.4	00:00:35	98%
T O'Reilly	48	77	47	Up	98.8	00:00:34	98%
G Rodriguez	43	71	44	Up	98.4	00:00:33	98%
P Nichols	42	74	49	Up	99.0	00:00:32	98%
J King	36	62	46	Up	98.7	00:00:31	98%
N McFarland	46	63	47	Up	99.2	00:00:30	98%
L Pesce	47	72	50	Up	98.2	00:00:29	98%
M Perkins	45	76	48	Up	98.5	00:00:28	98%

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Multi-parameter physiologic algorithm fuses 5 vectors to determine health status

First Bite Signature Analysis



Monitoring garments worn by security personnel can provide data in real-time



Atlanta Airport

“Canary in a Coal Mine”



Atlanta Airport

“Normal” for Tuesday 11:00am

52 airport security personnel being monitored continuously

“Canary in a Coal Mine”



Atlanta Airport

“Warning” for Tuesday 11:22 am

3 officers showing 23% increased coughing and shortness of breath,
elevated heart rates and “out of normal” activity

“Canary in a Coal Mine”

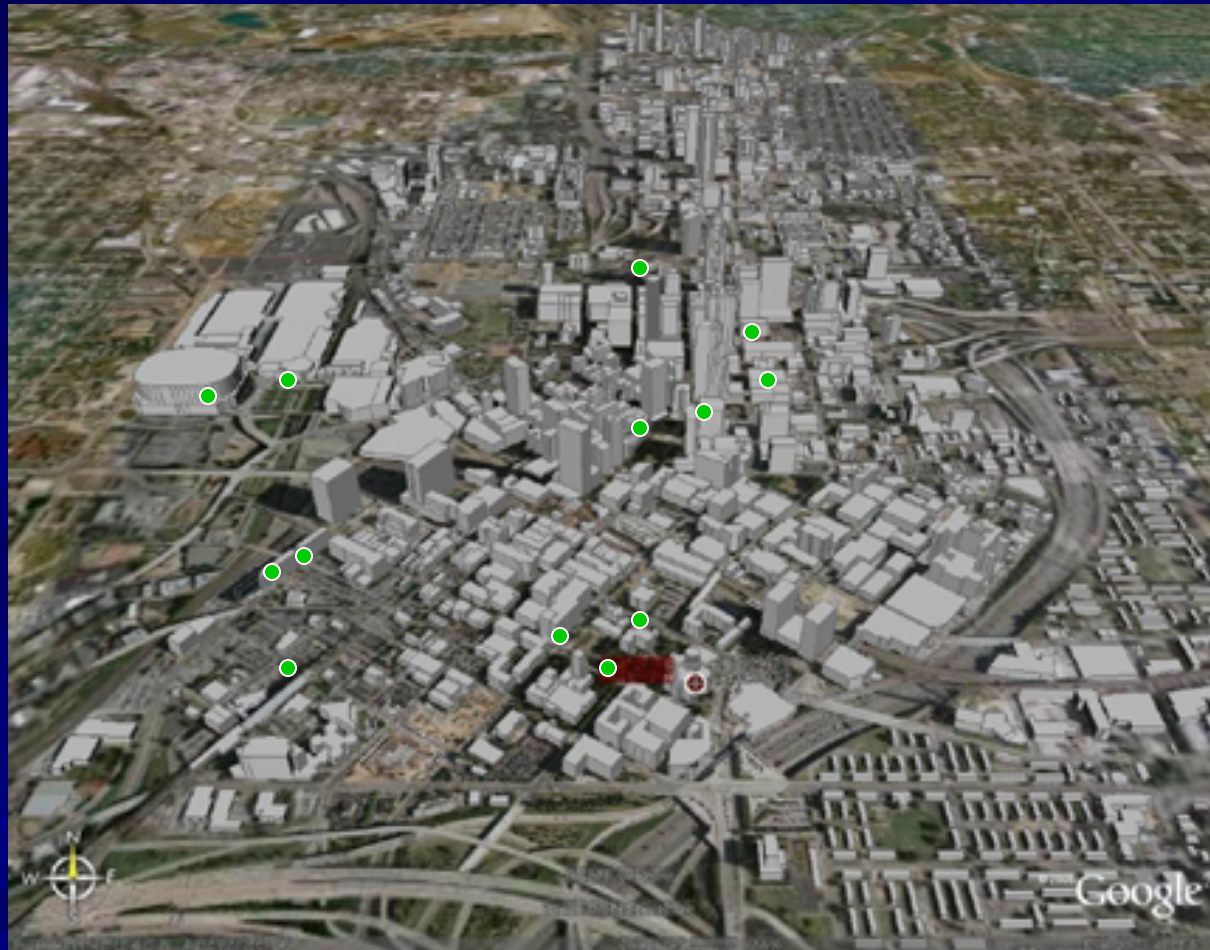


Atlanta Airport

“Alert” for Tuesday 11:26am

5 additional officers with increased wheezing, 2 supine with respiratory spasms and elevated HRV

This concept can be scaled



Atlanta
“The Pulse of the City”

LifeShirt worn by hazmat personnel can also improve first responder safety



The LifeShirt System

- Pharmaceutical trials
 - Pfizer, J&J, Schering Plough, Aventis, Takeda, GSK
- Academic Studies
 - NIH, Mayo Clinic, Yale, Johns Hopkins,
- Military
 - Air Force, Army, FLARE program, WRAIR
- Homeland Security
 - ODP Fire and Safety Grants
- Extreme environments
 - Aconcagua, Indy 500, Mount Rosa, Mount Everest, Sahara Ultra-Marathon: “Race Against the Planet”
- Over 120,000 hours of data collected in 150 studies



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