

**Databases critical to making wise
decisions in response to a crisis.**

Robert J. Baker

Biological and Museum Sciences

Texas Tech University





Database to Describe Nature

- There is information in DNA/RNA.
- Identify species of plants and animals
- Identify geographic origin of an individual or pathogen (postal code)

Creation of the Database

- Role of the museums:
 - Archival of tissues
 - Hanta virus example
- How complete is the dataset of diseases and vectors where human, agriculture, or economic crisis are possible?
- Molecular, computational, and genomic methods have great potential but funding is minimal.

Database to Describe Nature

- Identify diseases and vectors:
 - Geographic origin
 - Naturally occurring
 - Recombinant DNA creature
- Hemorrhagic Fever in Korea

Apodemus pallipes



Macrotus californicus





Cynopterus



Desmodus rotundus



**Diagnosis of 180 cases of Undifferentiated Febrile Illness
& thrombocytopenia over a 6 year period:
Diagnosis made 1 day to 3 weeks after referral.
(Courtesy of Dr. Gary L. Simpson)**

- **Hantavirus pulmonary syndrome (17)**
- **Bacterial sepsis (10)**
- **Plague (3)**
- **Tularemia (2)**
- **Borreliosis (5)**
- **Parvovirus B19 (5)**
- **Typhus-like fever (RMSF serol.) (5)**
- **Acute HIV-1 infection (3)**
- **Q fever (2)**
- **Acute rheumatic fever (2)**
- **Colorado tick fever (1)**
- **Bartonella species (5)**
- **Novel arenavirus(5)**
- **Undiagnosed = cryptic UFI (115)**

Tsunami, Nuclear Power Plants and the Media

- The “Fear Factor”
- 150,000 elective abortions at Chernobyl.
- What kind of data justifies this level of response?

How do we prepare for a crisis?

- Potential funding problems
- Administrative problems
- Media problems
 - Example from athletics
- Education and training

Tsunami, Nuclear Power Plants and the Media.

- 14,000 people killed by the tsunami
- That many people are unaccounted for
- 0 killed by radiation
- Media focused on nuclear power plants
- Choice of words used by the media
- Potassium Iodide tablets in Lubbock

What questions need to be answered in a bioterrorism crisis?

- What is the nature of the crisis?
- Is it natural?
- Is it man made? If it is then:
 - What humans created the crisis?
 - What was their intent?
- What is the real risk?
- What kind of data are needed for society to make informed decisions?