

Is There a Ethical Mandate to Prepare for a Cataclysmic Medical Disaster?

Peter Katona, MD

- ### Categories that need to be addressed
- Communication
 - Resources and Assets
 - Safety and Security
 - Staff Responsibilities
 - Utilities
 - Patient Clinical & Support Activities

- ### What could go wrong
- Water & supply chain disruption
 - Critical utility failure
 - Hospital security breakdown
 - Business continuity of operations, sustainability
 - Personal unpreparedness
 - Inadq funding
 - Collaboration/community planning
 - Decontamination
 - Emergency Operations Center

- ### New Disease Threats
- Since the 1970s, new threats have been identified at the unprecedented rate of one or more every year
 - Nearly 40 diseases exist today which were unknown just over a generation ago
 - Over the last five years alone, there are more than 1,100 verified epidemics of different diseases
 - Examples: SARS, avian flu, HIV


- ### Is the earthquake in Japan a wakeup call?
- States face \$175B deficit
 - Long-term federal debt of \$T
 - We have an aversion to long-term planning and commitment
 - More likely a snooze alarm that jolts us for a minute and then drift back to a level of complacency

- I'm not advocating we spend lots of money
- Rather asking if there is a need to re-prioritize?
- Learn from our mistakes
- Being more efficient in general

Large-scale disasters will happen!

Is the Earthquake in Japan a Wakeup Call?

Ask yourself:
If a disaster occurred today, what could I have done differently?



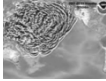

What would I be ethically held accountable for? How would I have allocated scarce resources differently?

The World's Deadliest Acute Disasters

Event	Death Toll
1. China floods (1931)	• 1-2.5 million
2. Yellow River flood (1887)	• 0.9-2 million
3. Shaanxi China earthquake (1556)	• 830,000
4. Bholia Pakistan cyclone (1970)	• 500,000
5. India cyclone (1839)	• 300,000
6. Antioch Turkey earthquake (526)	• 250-300,000
7. Tangshan China earthquake (1976)	• 242,419-665,000
8. Haiyan China earthquake (1920)	• 234,117
9. Indian Ocean tsunami (2004)	• 230,210
10. Haiti earthquake (2010)	• 316,000

There's More

- 142,000 deaths in the 1923 Great Kanto earthquake in **Japan**, 1923
- 138,000+ deaths in the 2008 Cyclone, Nargis in **Myanmar**, 2008
- 138,000 deaths in the 1991 cyclone **Bangladesh**, 1991
- 120,000 deaths in 1948 Ashgabat earthquake **Turkmen SSR**, (now **Turkmenistan**), 1948
- The deaths in the recent 8.9 earthquake, then tsunami then meltdown in east coast of Honshu, **Japan** are mounting
- 1964 Great Alaska earthquake had 125 deaths = 9.2
- Chile 9.3 1960

The Worst Pandemics in History


• Antonine Plague (possibly smallpox) 165-180 A.D.	• Influenza 1847-1848 A.D.
• Cyprian Plague 251-266 A.D.	• Cholera 1852-1860 A.D.
• Plague of Justinian 541 A.D.	• Bubonic Plague 1855 A.D.
• Black Death 1300s A.D.	• Influenza 1857-1859 A.D.
• Typhus 1501-1587 A.D.	• Cholera 1863-1875 A.D.
• Influenza 1580 A.D.	• Influenza 1889-1892 A.D.
• Influenza 1732-1733 A.D.	• Cholera 1899-1923 A.D.
• Influenza 1775-1776 A.D.	• Spanish Flu 1918-1919 A.D.
• Cholera 1816-1826 A.D.	• Cholera 1960s A.D.
• Cholera 1829-1851 A.D.	• HIV/AIDS 1980s-to date

Past Natural Disaster Deaths

- Pandemics
 - Plague & flu - hundreds of millions
- Floods
 - China - 1-2.5 million
- Famines
 - China &, India - tens of millions
 - Europe, Russia, Vietnam, North Korea, Ireland, Ethiopia > 1 million
- Tsunamis
 - 3 (Indian Ocean, Lisbon, Italy) each >100,000
- Volcanic eruptions
 - 7 have each >10,000

2010 Floods in Pakistan

- 2,000 deaths
- 20% of land area under water
- Affected 20M people
- \$43B in damages
- WHO reported 10M people forced to drink unsafe water
- Very unstable country to be begin with



Australia summer 2011

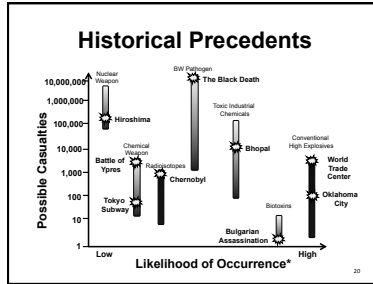
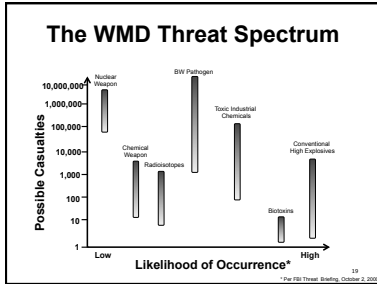
- Floods, (brush) fires, cyclones
- Tourism GBR – coral sites around Cairns sig damaged

Medical Care Stresses in the Future

- Another 9.0 earthquake/tsunami
- Nuclear detonation
- A weaponized or bioengineered biological agent
- A direct assault on the medical establishment or other highly important infrastructure
- A deadly pandemic
- A 'perfect storm' assault or "reload" combined with panic, confidence loss, even cyber

Man-made Disasters

- Wars and Genocide: Pogroms in Russia, killing fields in Cambodia, Holocaust in Europe
- Toxin incidents: Bhopal Accident
- Chemical weapons: WW1
- Nuclear accidents: Three Mile Island and Chernobyl
- Bioevents: Sverdlovsk, Kaffa, anthrax letters

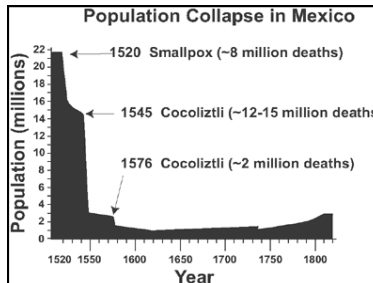


U.S. Homeland Disasters

Event	Death Toll
1861-1864 Civil War	620,000
1918-1920 Spanish flu	500,000
1990 Galveston cyclone	8-12,000
1906 SF earthquake/fire	3-6,000
1928 Florida Okeechobee cyclone	2,500+
2001 9/11 attacks	2,973
1941 Pearl Harbor attack	2,403
1889 Johnston Dam burst	2,209
1893 Louisiana cyclone	2,000
2005 Hurricane Katrina	1,836
1980 heat wave	1,700
1871 Wisconsin fire	1,200-2,500
1893 cyclone	1-2,000

What was the biggest cause of death during the Civil War

Not the Minnie Ball but rather Gastroenteritis



Los Angeles is a Target

- What's happened
 - Earthquakes, breaking of dams, fires, train wrecks, plague in Chinatown
- What could happen
 - Disruption of essential services
 - A terrorist attack, a larger earthquake or fire
 - 7 days petroleum, 5 days food
 - Port complex shutdown
 - Live on a giant fault

Why is disaster management important now?

- Jihadi and other extremist terrorism
- Greater availability of aggressor tools
- Rapidly accelerating complexity
- Information overload
- Climate change bringing more violent weather
- Dysfunctional and unethical governments
- Paradigms are changing.....


A Perfect Storm

- Threat of bioterrorism or even nuclear terrorism
- Cyber
- Black Swans


The Medical Care Paradigm

Normal times	Disaster times
Treat all comers	Don't treat the sickest
Don't worry about cost	Worry a lot about cost
Use new technology because it improves care (and it's fun)	Use new technology because it improves efficiency and cost

The Public Health Paradigm

<p><u>The Old</u></p> <ul style="list-style-type: none"> • Taking your time to make well thought out decisions • Less variables • Limited news coverage • Minimal scrutiny 	<p><u>The New</u></p> <ul style="list-style-type: none"> • Making very quick decisions based on incomplete data • Decisions more complex and more scrutinized • 24/7 news coverage • Many talking heads • Blame if you are wrong
--	---

The Law Enforcement Paradigm

<p><u>The Old</u></p> <ul style="list-style-type: none"> • Briefly cordoning off • No quarantine • Limited decon needed • Less violent crime, gangs • Working in isolation • Terrorists had boundaries • Explosives 	<p><u>The New</u></p> <ul style="list-style-type: none"> • Prolonged quarantine • Everyone in the area is potentially affected • Intense complex HAZMAT decon • More violent crime • Greater sharing of information • Working with public health, fire, and others • No boundaries • WMD and suicide bombers
--	--


Will rapidly evolving events overtake us before we have a chance to understand the ethics?

1. Prepare & plan for low probability high consequence events
2. Stewardship of our resources, rationing when appropriate
3. Cultural differences in ethical attitudes
4. The media's responsibility
5. Lawyers, laws and liability
6. Leadership lacking
7. Treatment emphasized more than prevention
8. Clinical trials in developing countries (human experimentation)
9. NGOs & volunteers skirting local laws during a crisis
10. Balancing homeland security, public health & privacy

Will rapidly evolving events overtake us before we have a chance to understand the problem and the ethics?

The Physician's Ethical Issues to Ponder

- Right to die, euthanasia, assisted suicide, marijuana, abortion
- Triage, access to care, rationing
- Hippocratic, Public Health oaths, but no politician oath
- Instinctively doing the right thing (NYC subway incident)
- The conflict between public health utilitarian thinking and medical care for the individual
- Working during a disaster without compensation
- Selling out to lawyers and celebrities
- Prevention and early detection



Where's the Ethics?


- 90% of medical resources go for diseases affecting 10% of the world's population.
- 70% of healthcare spending in the US is for preventable lifestyle-induced disease.
- Compared to medical care, we spend very little on public health. Yet public health saves more lives.

The Unethical Health Care Expenditures in U.S.

- 17% of U.S. GDP (highest in the world)
- 3% of healthcare resources are spent on prevention
- 32% are spent on non-healthcare related services
- All but 5 of the 40 additional years gained in the last century were from public health measures!

The Ethics of the Haiti Earthquake

- Only 5% of 22 million cubic yards of concrete rubble cleared
- Aid workers accused of causing epidemic
- Leadership vacuum with fraud-tainted Nov 28 elections
- Legacy of centuries of misrule



A 2010 Physician Ethics Survey of 10,000 physicians asked:

Would you ever recommend or give life-sustaining therapy when you judged that it would be futile?

The Response:

- 23.6% said "Yes"
- 37.0% said "No"
- 39.4% said "It Depends."

Ethics of Healthcare Duties

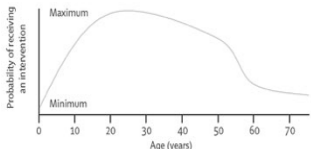
- To plan ahead
- To steward resources
 - Distributive justice & fairness with rationing
 - Transparency
- To care for the ill
 - Altered triage
 - Alternate Care Sites
 - Fairness to the disadvantaged



**Clinical Medicine vs. Public Health:
In a disaster who do you treat?**

- The benevolent elderly donor or the young, ex-con heroin addict
- Putting supplies away rather than using them to treat a "less deserving" patient
- Triage change
- Reassessing the new role of "comfort care"

**Dr. Ezekiel Emanuel:
Obama's Health Rationer-in-Chief**



Fraud in Research

- British Dr Andrew Wakefield – vaccines causing autism
- Korean Dr. Hwang Woo-suk - stem cell cloning
- Norwegian Jon Sudbo – ANSAIDs lowered oral cancer and increased risk of heart disease
- Eric T. Poehlman, a top obesity researcher - >200 articles including linking menopause to declines in woman's health
- MIT's Luk Van Parijs - T cells in the immune system
- Dr. William Summerlin in 1974 colored patches of fur on white mice with a black marker to prove that his new skin graft treatment was working

US Office of Research Integrity (ORI)

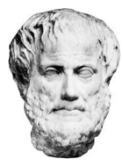
- Promotes integrity in biomedical and behavioral research supported by the U.S. Public Health Service
- Monitors institutional investigations of research misconduct
- Facilitates the responsible conduct of research through educational, preventive, and regulatory activities

Defining Judeo-Christian Ethics

Principles of right and wrong that govern a person's or group's behavior – medical behavior in this case


**Ethics in Western Philosophy:
Aristotle**

Virtues that benefit both the person and society




**Ethics in Western Philosophy:
Immanuel Kant**

Humans are bound to respect other rational beings



Ethics in Western Philosophy:
John Stuart Mill

Utilitarianism or goal is the greatest happiness or benefit for the greatest number



Medical Ethical Standards Will Vary

- Individuals
- Healthcare workers
- Hospitals and clinics
- Elected officials
- The Media
- Europe, the U.S. and elsewhere

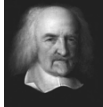


Western ethics, often based on money, faith and popularity, is different from eastern ethics.

Summary: Western Ethics

- The main values are success and happiness, that can be achieved in different ways, but rarely through developing ones inner strength.
- But rather money, faith, or popularity
- Where the way ahead is through active outside intervention.

"What people want most from the state is protection, not freedom."



Leviathan (1651)
Thomas Hobbs

He claimed that man is a selfish hedonist.


morality was a puree social construct, generated and imposed by an autocratic monarch or state through laws and institutions, to keep war and social disorder at bay.

Eastern Taoism and Confucianism

- In Eastern philosophy, exemplified in Taoism and Confucianism, the key is inside. What's valuable is the inner world of the human being and his natural ability to control and develop it. The way ahead is through self-development or inside intervention.
- *"The superior man understands what is right; the inferior man understands what will sell."* Confucius

Today's Modern Interpretation


- Ethics = Money
- Morality = Sex



Hurricane Katrina raises a number of ethical issues.

Dr Anna Pou's Saga

- Charges were brought against her and two nurses for four deaths
- Criminal charges were eventually dropped
- Civil charges are still pending

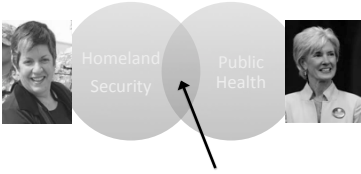


Ethics for Crisis Standards of Care

- Finally on the table
- Duty to care and plan
- No national standards
- Need indicators & triggers
- Lessons from Dr Pou & Katrina



Men are from Mars
Women are from Venus



Bio & other medical threats

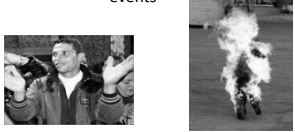
Healthcare Security Ethics

- Vulnerability of our healthcare system is a homeland security concern
- A medical catastrophic disaster could
 - severely damage our healthcare system
 - diminish confidence in the government
 - Completely change our lives
- Healthcare itself is a viable target
- Limited interest in low probability high consequence events

Causes of the Arab Upheaval


- Tyranny**
- Rising food prices,**
- Youth unemployment**
- Social media**
- Obama factor
- Google Earth
- Israel
- Beijing Olympics
- Fayyad factor

a Tunisian street vendor, Mohamed Bouazizi, in protest over the confiscation of his fruit stand, set himself on fire, and thus managed to trigger popular uprisings all across the Muslim world – trigger for a low probability high consequence or “Black Swan” series of events





Nassim Taleb's *The Black Swan*

- Low probability high impact events determine history
- We look at what we are aware of, not those things forgotten in forming that evaluation
- We over-estimate what we know and underestimate uncertainty



Examples of Black Swans

- The earthquake/tsunami/meltdown in Japan
- Many volcanic eruptions
- 9/11 & the anthrax letters
- Haiti earthquake
- Swine flu 1918-1919
- Asteroid hitting the earth



- Asteroid flattened 800 sq miles of forest in Tunguska region of Siberia in 1908

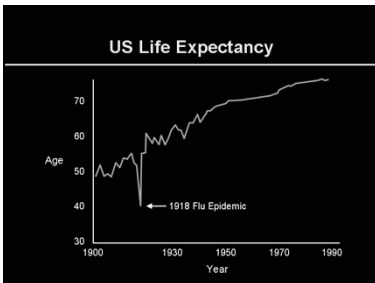
Japan: Black Swan Dominos

- Earthquake
- Tsunami
- Nuclear meltdown
- Supply chain disruption
- Rebuilding



The Normalcy Bias

- A natural reaction when facing a crisis
- Causes smart people to underestimate the possibility of a disaster and its effects
- People believe that since something has never happened before, it never will
- Example: the holocaust, Katrina



Transitioning from "Normal" to Disaster Times (and back)

- "Normal" may already be a disaster
- Protocols and call down lists are activated
- EOC's are activated
- Handling the flow of changing goods & services
- Who pays? How much drain on the economy?
- Quarantine, isolation, shelter in place or evacuation
- Political, legal, logistic and ethical challenges

Disasters and Healthcare Workers

- Take an oath
- Some health care providers head for the hills
- Some stay at home with their kids?
- Some will refuse to work for free?
- Some will be so concerned about an uncertain liability that they will be paralyzed?

What do we mean by "prepared"?

...the "right place" on the continuum between mindless complacency and all consuming paranoia

Mindless Complacency ↑ All Consuming Paranoia

Dr. Irwin Redlener, Associate Dean & Director
The National Center for Disaster Preparedness

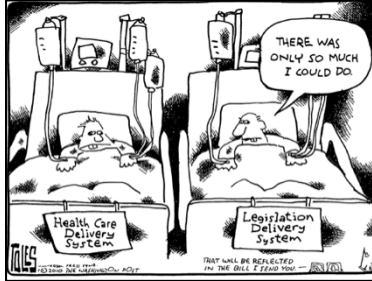


We're in a world filled with barriers to an ethical disaster response!



These Barriers include Inherent Faults

1. Medical infrastructure itself
2. How we handle **medical error**
3. Too many committees, **laws**, regulations and agencies
4. **Leadership** often unwilling to take a chance
5. Being reactive not proactive
6. Pampered complacency or not willing to be inconvenienced
7. Misplaced priorities
8. Self-serving **media**, business & elected officials, not enough P's
9. Inability to balance civil liberties & security
10. A very complex world



Today's hospital "system"

- Like independent fire stations without agreements with others for multiple alarm fires
- No broad incident command structure
- HICS is a good start for facilities, but it is internal to each facility without unified command, and rarely practiced



Medical Errors



Hospitals Make No Headway In Curbing Errors, Study Says

By DENISE GRADY
 Efforts to make hospitals safer for patients are falling short, researchers report in the first large study in a decade to analyze harm from medical care and to track it over time.
 The study, conducted from 2002 to 2007 in 10 North Carolina hospitals, found that harm to patients was common and that the number of incidents did not decrease over time. The most common problems were complications from procedures or drugs and hospital-acquired infections.
 "It is unlikely that other regions of the country have fared better," said Dr. Christopher T. Landrigan, the lead author of the study and an assistant professor at Harvard Medical School. The study is being published on Thursday in The New England Journal of Medicine.
 It is one of the most rigorous efforts to collect data about patient safety since a landmark report in 1999 found that medical mistakes caused as many as 98,000 deaths and more than one million injuries a year in the United States. That report, by the Institute of Medicine, an independent group that advises the government on health matters, led to a national movement to reduce errors and make hospital stays less hazardous to patients' health.
 Among the preventable problems that Dr. Landrigan's team at Harvard Medical School, The

Ethics, the IOM & Medical Error (1999-2008)

- Medical mistakes cause 98,000 deaths and >1M injuries a year
- 18% of patients were harmed by medical care
- 63% of the injuries preventable
- Most temporary and treatable
- 2.4% caused or contributed to death

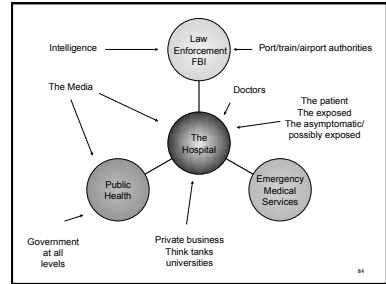
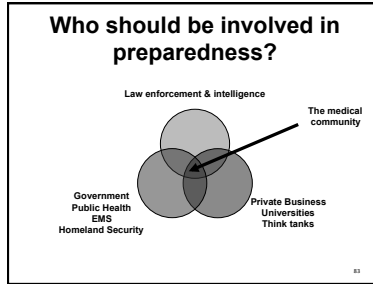


Too many committees, laws, regulations and agencies

Leno – week of March 3 2011

- According to a new study by a federal watchdog agency, overlapping and duplicate federal programs waste billions of taxpayer dollars every year. Congress has taken the study so seriously that it has ordered a second study to look into it.

- ### Agencies Responding to a Homeland Medical Disaster
- **Local**
 - Public Health (3,000)
 - Police (17,000)
 - Fire, EMS
 - Disaster managers
 - Healthcare providers
 - Utility providers
 - **Federal**
 - HHS including CDC
 - DoI including FBI
 - DHS including FEMA
 - DoD including NorthCom
 - DoA, EPA.....
 - **State**
 - Public Health Authority
 - Disaster Management
 - National Guard
 - **Int'l**
 - Governments
 - Relief Agencies, NGOs
 - WHO

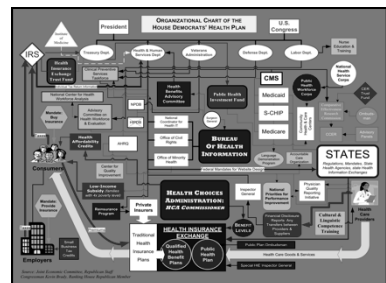
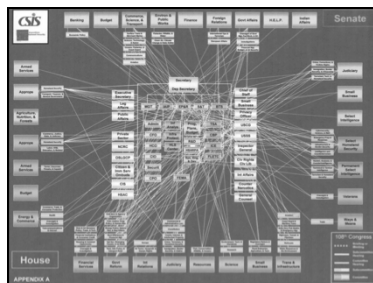
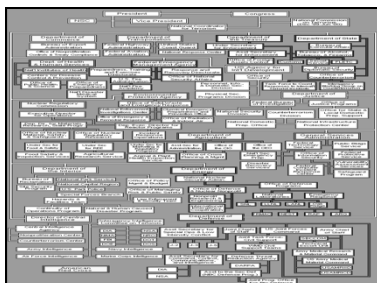


State of California Agencies

[This block contains extremely small, illegible text, likely a list of state agencies.]

[This block contains extremely small, illegible text, likely a list of state agencies.]

[This block contains extremely small, illegible text, likely a list of state agencies.]



Leadership Ethics



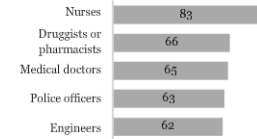
- Who's in charge?
- Elected officials?
- Career city managers or public employees?
- Not enough training & realistic exercises

Leadership & Politicians in California

- Republicans overwhelmingly won in national Congressional elections
- Ca legislature has a 16% approval rating
- Not a single incumbent state legislator in California lost re-election this past election, including one Democrat who died a month before the election!
- A candidate for governor admitted that she had never voted in an election

Five Most Highly Rated Professions

■ % Very high/High honesty & ethical standards



Nov. 20-22, 2009

Being Reactive not Proactive

- TSA in America
 - Taking off shoes after Shoe Bomber
 - Scanners and body searches after Underwear bomber
 - Liquids restricted after they were tried
 - Forgiveness after error
 - Director candidate rejected by a single Senator
- Screening in Israel
 - All airport workers are at least bilingual
 - All trained in "terrorist" not racial profiling
 - Every passenger questioned
 - Constant review and zero tolerance for error

Cholera: We would rather blame others

- 1832 cholera in NYC – Canadians blamed
- 1866 - Irish blamed for sneaking ashore from quarantined ships
- 1991 New World from ship dumping bilge in Peruvian harbor, spread to Mexico – cocaine smugglers blamed
- 2010 Haiti – Nepalese soldiers blamed

Cholera in London (1854)

- Population: 2,500,000 people Victorian large-scale metropolis with old Elizabethan public health infrastructure
- Cholera in 1832 killed 10-20,000
- Cesspools in basements, livestock in the attic for milk
- Illness blamed on smells or myasmas
- Newsome Act – empty cesspools into river thus poisoning the water supply
- John Snow first to argue that cholera was water-borne

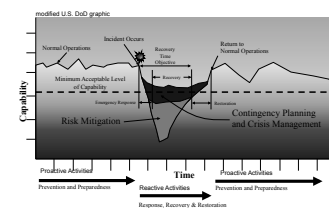


What about the ethics of misplaced priorities?

Government and Media

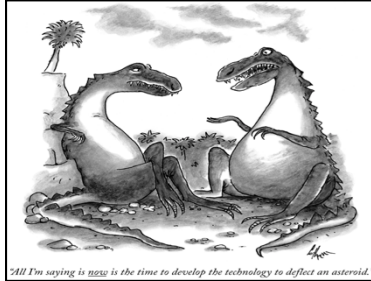
- Too much misinformation
- 24/7 coverage always looking for talking heads during a crisis for 30 sec time slots
- Sensationalism wins out over importance
- Investigational journalism dying for lack of funding
- Too much money shaping opinions
- Can hound - look at Steven Hatfill

Continuity of Operations Planning Overview



Finally: How can we deal with disasters effectively when the system is broken even in normal times?

- Medicine is a fragile, interconnected, multidisciplinary, desynchronized system that is way too expensive
- It is dying a slow death
- Too little effort domestically & internationally to fix it
- Waiting for the technological miracle
- Worry that a domino effect could topple the system



It's not a question of "if" but "when"

- Is there an ethical imperative to prepare?
- How much can we take away from current programs?
- How do we prepare? All-hazards approach?
- How should effort be split between preparedness, handling the event and recovery?
- Balancing the medical rights of the individual with the public's health as a whole and the nation's security

It's not a question of "if" but "when"



The Chinese depict the word "crisis" with two pictograms



Chinese symbol for danger.

Chinese symbol for opportunity.