

Risk and vulnerability analyses

Myths-Paradigms- Truths- Axioms

Knut Ole Sundnes MD

Chair,

Task Force on Quality Control of Disaster Management

Head, Office for War Surgery and Emergency Medicine,

Joint Medical Command, Norwegian Defence Forces.

Terms and concepts

- Axioms
- Truths
- Paradigms
- Myths
- Dogmas
- Hypotheses
- Doctrines
- etc.
- Threats
- Events
- Vulnerability
- Risk
- Disaster
- Tragedy
- Cost-benefit
- Ethics
- etc.

AXIOM:

Self-evident truth which cannot, but also need not to be proven.

TRUTH:

A condition or cause-effect relationship that will not change and which can be proven/ is based on evidence.

PARADIGM:

A "truth" dependant on time and place, the temporary "golden standard", an example.

MYTH:

A general perception or commonly-held belief which is untrue and for which there is no foundation.

Paradigms fathom

- Definitions
- Actions
 - Cause-effect relationship
- Cultural behaviour
- Religious belief
- Ethics
 - Research
 - Treatment

Paradigms fathom

- Societal mechanisms e.g.:
 - Market economy!!??
 - Are resources and money the same?
 - Is money an acceptable indicator for physical and mental well-being?
- Politics
- Professions

The Golden Rule:

He,
who has the gold,
makes the rule!

A paradigm, a myth, an axiom, a truth?

Shift of paradigms: terror as a political instrument:

- Terror was used to *prevent* things from happening. (Deterrence during the Cold War period.)
- Terror is now increasingly used to *make* things happen.

Current paradigm on terrorism:

War against terror
equals fighting the terrorists?

But:

When to fight symptoms?

When to fight causes?

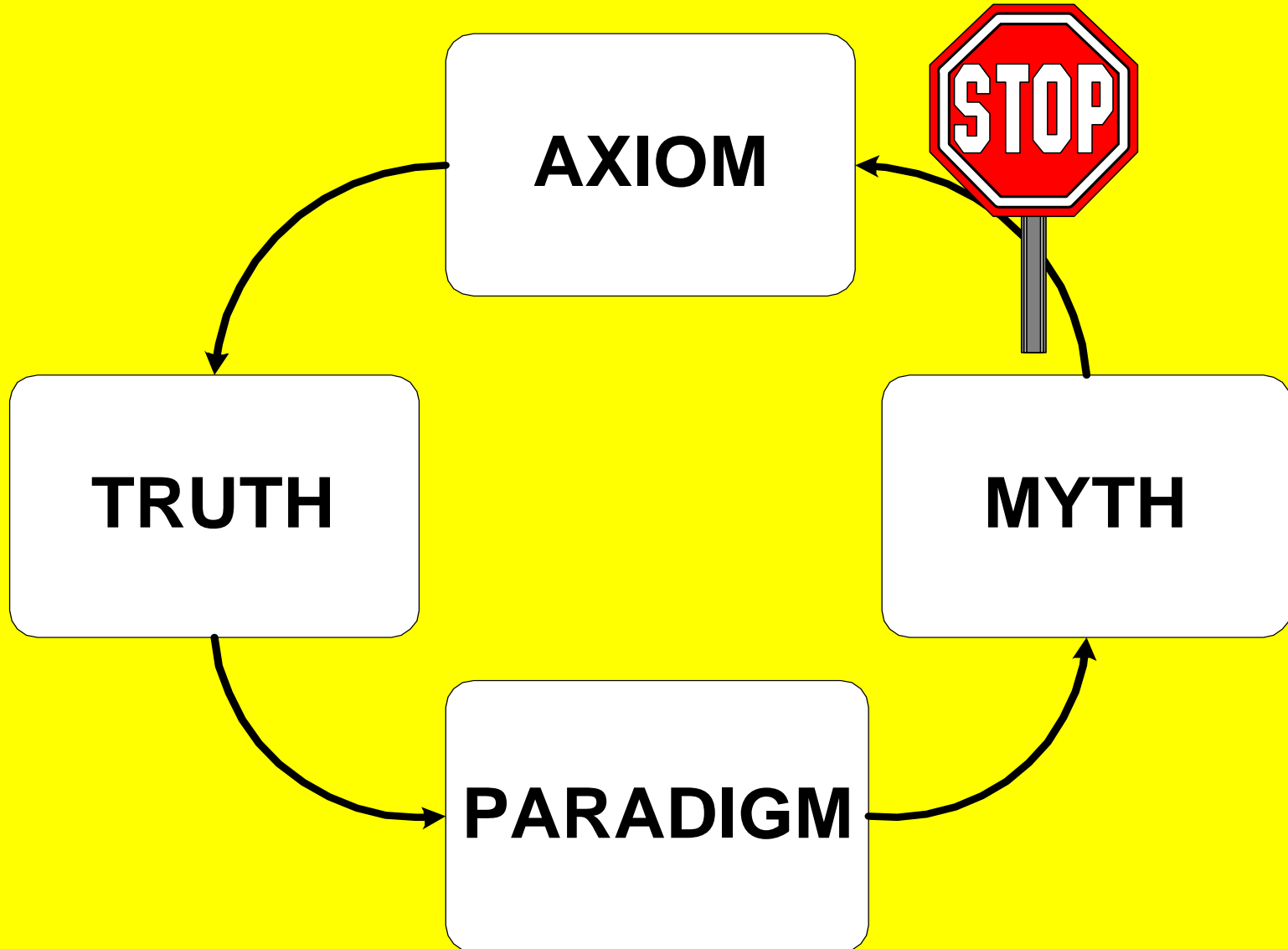
When to fight both?

We do not fight poverty by fighting the poor!

Stop propagating disaster myths!

Claude de Ville de Goyet. PDM 1999;14:213-214

Circle? of Truth



Myths and Facts

- Myth:
 - Dead bodies are the cause of epidemics!
- Fact:
 - Dead bodies pose no public health risk of cholera, typhoid or other plagues.

Claude de Ville de Goyet. PDM 1999;14:213-214

Myth and Fact

- Consequences
 - Unceremonial precipitous disposal of corpses with violation of local ethics and emotional needs.
 - Lack of death certificates have long lasting financial consequences.
 - Other initiatives have to wait (opportunity costs).

Myths and Facts

- Myth:
 - The affected local population is helplessly waiting for the Western world to save it.
- Fact:
 - Only a handful of survivors owe their lives to foreign teams.
 - Neighbours and local authorities do most of the job
 - Foreign teams are often inappropriate.

Claude de Ville de Goyet. PDM 1999;14:213-214

Myth and Facts

- Myth
 - Any kind of international assistance is needed and is needed now.
- Fact:
 - Unsolicited assistance is often counterproductive and adds to the chaos.
 - Cash is often better than kind.

Claude de Ville de Goyet. PDM 1999;14:213-214

Myth and Fact

- Myth:
 - The affected population is too shocked and helpless to take responsibility for their own survival.
- Fact:
 - Many find new strength and invest extra efforts to help their own families and other victims.

Myths and Facts

- Myth:
 - Things go back to normal within a few weeks.
- Fact:
 - Effects of disasters last a long time.
 - Financial and material resources are depleted, sometimes for many years.

Myths and Facts

- Myth:
 - DNA will revolution the victim identification.
- Fact:
 - Last naval disaster in Norway (2004), DNA failed. Dentists produced the identification.
 - Tsunami: 80+% identified by forensic dentists, pathologists and fingerprints.
 - Only 13% of the specimen produced proper DNA

Myth?, Paradigm? or Fact?

A “born leader” is capable of leading any enterprise and/or operation!

Paradigms are difficult because they are related to

- Time period
- Geography
- Profession
- Ethnicity
- Religion

Differences between cultures

- Military operational paradigm:
 - C4I : Command, Control, Communications, Computers and Intelligence
- Civilian, humanitarian operational paradigm:
 - C4A: Co-operation, Co-ordination, Consensus, Communication and Assessment

Differences between cultures

- Military operational paradigm (certain groups):
 - The Red Cross reveals your position and attracts enemy fire.
- Civilian, humanitarian operational paradigm:
 - The Red Cross gives you protection as imbedded in the Geneva Conventions.

Paradigms have consequences

- Shifting paradigms
 - Search and Rescue in earthquakes makes sense for 1-2 weeks.
 - Nobody survives 48 hours,
- Facts:
 - Very few are found alive after 48 hours
 - Occasionally survivors are rescued after 7 days
- Problems
 - Opportunity costs, re-route resources, emotions and ethics

Research Paradigm on conflicts and disasters?

- Retrospective evaluation of anaesthetic methods at ICRC hospital in Kabul was rejected as “unethical use of beneficiaries as guinea pigs”. (Geneva top decision in 1992).
- Use of cameras in the refugee/POW camps in Mekele was forbidden as it hurts the dignity of the beneficiaries. (ICRC 1991)

How can we learn from disasters
if one paradigm would be that it
is unethical to learn?

Shift of paradigms

- Disaster medicine is becoming a science.
- Qualitative research is accepted by medical databases.
 - Disasters have made the bridges between social science and medical science
- This opens for active challenging of other paradigms!

If paradigms shall make sense,
their definitions must make
sense.

For definitions to make sense they must at
least not be contradictive!

Confusing e.g.:

Disaster with Tragedy

Risk with Damage

Risk with Hazard

Resources with Money

Costs with Money

Effectiveness with Benefit

Major Conflicts

- Center for Systemic Peace (US):
 - *>1000 killed per year*
- Stockholm International Peace Research Institute:
 - *>100 killed per year*
- Uppsala University Department for Peace and Conflict:
 - *>25 killed per year.*

Evolution of paradigms:

- Definition of disaster
 - Sudden?
 - Unexpected?
- Man-made versus Natural disaster
- Acts of God

All these terms are now challenged and hardly considered compulsory integral part of the disaster paradigm.

Dr. Samuel Henry Price

- First Thesis on Disasters, Columbia University 1920:
 - ”Catastrophy and Social Change”.
 - After Halifax explosion in 1917:
 - 2,000 dead
 - 9,000 injured
 - 25,000 homeless (50,000 Inhabitants)

All Disasters are Human-made

- First stated by Carr in 1932:
 - ”an earth tremor is not a disaster, a rush of water is not a disaster. It is the collapse of the cultural protection that constitutes the disaster proper.

Dr. Suvit Yodmani, Director, Asian Disaster Preparedness Centre

- Evolution of Poverty Paradigm:

- A question of Income
- Multi dimensional and not only a question of income
- To be measured with human poverty indicators

- Evolution of Disaster Paradigm:

- One-off events treated as they came
- Contingency planning
- Technocratic approach; early warning
- Vulnerability analysis
- Comprehensive disaster management approach.: RISK!?

Total Disaster Risk Management Approach

- However, the terms "risk" and "total" have become management science jargons. In this regard, the concept of "risk", which in science connotes probability, needs to be understood adequately and not confused with hazard.

E.M. de Guzman,

Asian Disaster Reduction Center and UNOCHA

Risk and vulnerability

- R=Risk
- F=Frequency
- P=Population
- A=Asset
- H=Hazard and Threat
- V=Vulnerability
- I=Impact
- C=Consequences
- Ca= Capacity
- Co= Countermeasures
- T= Type
- S=Severity
- L=Likelihood
- $R = F \times C$
- $R = f(H \times V / Ca)$
- $R = f(A \times V \times H)$
- $R = H \times V - Ca$
- $R = F \times P \times V$
- $R = V \times I \times T$
- $R = I \times (H \times V)$
- $R = (H \times V) / Co \times I$
- $R = H \times V$
- $R = S \times L$
- and more

Risk formulas?

- They are all different
 - 18 words for 13 definitions
- Risk is a mathematical entity!
- All violate the linguistic property of the word "risk".
- They are all conceptually and mathematically wrong.
- They are too simple to guide structured research.

Myths

- Myths in disaster settings need structured research and evaluations to be revealed
- Paradigms need to be challenged through structured research to be further developed or even shifted.

Paradigms of ethics, controversies:

- Concomitant research on disaster
- Longitudinal triage
- Participating observation
- Principle of triage applied on
 - water
 - food

Developmental assistance

- Paradigm one: International assistance is necessary to promote democracy and economical development for "3rd World" Countries.
- Paradigm two: International developmental aid is in fact crippling the recipient country through the creation of an AID ECONOMY.

Important paradigms challenged daily!

- International Humanitarian Law
 - Violated by most countries when convenient
- Human Rights
 - Neglected when deemed an obstacle
- Tokyo declaration on Physicians against Torture.

Which paradigm to choose?

- The recipient population always knows best what they need.
- Trained needs assessment teams are the better judges of what is needed.
- Or none of them?

Utstein Template, a new Research Paradigm?

- Has the potential as it is
 - **accepted by WHO and PAHO**
 - **accepted by EU research Centre.**
 - **sold through the UN book shop**
 - **translated into Spanish**
 - **translated into Czechish**
 - **started translation into Greek**
 - **Japanese colleagues have asked for permission to translate into Japanese.**

Conclusion:

- Challenge your own paradigms!
- Challenge others' paradigms!
- Reveal the myths!
- Find the truth!
- And stick to it!

Thank you!