Facts and perceptions: the myth of lessons learnt

the dialectics between scientific evidence and policy
in extra-ordinary public health challenges (EOPHC)

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Dr. Geert Seynaeve, MD, MPH, MMPhR
geert.seynaeve@attentia.be

ECOMED , Brussel, Belgium
5 ‘disaster’ myths: facts vs perceptions

- scope, conceptual framework & terminology
- scientific evidence & policy
- disaster risk management cycle ‘phases’
- health ‘needs’ & resources
- ‘decision making’ in three major public health emergencies with cross-border impact

5 suggestions for ‘innovation’ in response
approach: “experiences”

- CMO of Emergency Medical Services Belgium
- European Core group Disaster Medicine (DG ENV)
- World Association for Disaster and Emergency Medicine (WADEM) & European Society for Disaster and Emergency Medicine (EUSDEM)
- Deputy Editor Prehospital & Disaster Medicine (PDM)
- FP7 projects (SGL for USaR; Darius; Impress) & H2020 (Toxi-Triage)
Hugo Claus
“Het verdriet van België”
terms & concepts

major incident (MI)
disaster
(mass) emergency
mass casualty incident (MCI)
(public health) crisis
catastrophe
contingency
calamity
etc.

health perspective:
EOPHC

extra-ordinary
public health
challenge
extra-ordinary public health challenge EOPHC

extra-ordinary situations of Public Health concern and relevancy requiring a particular approach and special arrangements, which are qualitatively different than those of routine activities.

This includes the health issues and problems related to a wide variety of scenarios with an important adverse health impact described, by ill-defined and inconsistently used terms such as ‘major incident’, ‘disaster’, ‘emergency’, ‘crisis’, ‘contingency’ and related composite key-words (e.g. mass casualty incident, MCI; epidemic outbreak; potential injury/illness-causing event, PICE; Critical Health Event, CHE; etc.).

On the other hand, extreme events resulting in massive destruction and property loss, or even in a high number of immediate human fatalities, do not necessarily lead to major concerns or to an unusual challenge for the routine functioning of a healthcare system.
extra-ordinary public health challenge EOPHC

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Myth 1: evidence-base

disaster/EOPHC related activities
• including funding & allocation of resources

are NOT based on scientific risk-assessments of adverse health impact of events

BUT influenced by powerful drivers (mass media, politics, corporate & private interests...) [hypes]
Myth 1: evidence-base

biased, artificial narrow **scope** of “disaster” /EOPHC: only within the context of a given health system

NOT included are: ‘**silent disasters**’ (extreme) adverse health situations resulting from structural inadequacies of health systems e.g. socio-economic underdevelopment;
underfunding and lack of resources;
social disparities, discrimination and injustice;
insufficient research;
etc.

which, in fact receive inadequate priority, including funding & allocation of resources compared to mediatized, ‘dramatic events’ and “hypes”
Myth 1: evidence-based “disasters”

**FACT:** In 2015, more than 16,000 children under age five died every day. Almost all of these children’s lives could be saved if they had access to simple and affordable interventions such as exclusive breastfeeding, inexpensive vaccines and medication, clean water and sanitation. Children are at a greater risk of dying before age five if they are born in poor households, rural areas, or to mothers denied basic education.

**FACT:** 45% of deaths among children under age five occur during the first four weeks of life. Prematurity, birth-related complications and neonatal sepsis were the leading causes of deaths among newborn babies in 2015.

**FACT:** In 2015, an estimated 2.6 million babies were stillborn. Nearly all babies who are stillborn are not recorded in a birth or death certificate, and thus have never been registered, reported or investigated by the health system. As a result, countries often do not know the numbers of deaths or the causes of these deaths and thus are unable to take the effective and timely actions to prevent other babies from dying.

**FACT:** 1.3 million deaths in 2015 were attributable to hepatitis. Hepatitis is an inflammation of the liver, that can progress to fibrosis (scarring), cirrhosis or liver cancer. Most hepatitis deaths are due to hepatitis B and C. Globally, in 2015, an estimated 257 million people were living with chronic HBV infection, and 71 million people with chronic HCV infection. Few people with viral hepatitis have been diagnosed, and among those, treatment has reached only a small fraction.

Myth 1: evidence-based “disasters”

**FACT:** Noncommunicable diseases (NCDs) caused 37% of deaths in low-income countries in 2015, up from 23% in 2000. In low-resource settings, health-care costs for cardiovascular diseases, cancers, diabetes or chronic lung diseases – the four main causes of NCD deaths – can quickly drain household resources, driving families into poverty. Globally, 70% (nearly 40 million) deaths in 2015 were due to NCDs. NCDs are often associated with older age groups, but 43% of all NCD deaths in 2015 occurred before the age of 70.

**FACT:** Ischaemic heart disease and stroke killed 15 million people in 2015. Cardiovascular diseases caused 31% of all deaths globally.

**FACT:** Diabetes are among the 10 leading causes of deaths and disability worldwide. Disability-adjusted life-years (DALYs) per 100 000 population due to diabetes increased by over 31% between 2000 and 2015, putting it in the top 10 causes of DALYs. Number of deaths, and death rate per 100 000 population, increased by 66% and 38%, respectively, during the same period.

**FACT:** Injuries claimed nearly 5 million lives in 2015. Over a quarter (27%) of these deaths were due to road traffic injuries. Low-income countries as a group had the highest mortality rate due to road traffic injuries with 28.5 deaths per 100 000 population – the global rate was 18.3. By contrast, high-income countries experienced the highest suicide rate at 14.5 deaths per 100 000 population – the global rate was 10.7.

Some Americans spend billions to get teeth whiter. Some wait in line to get them pulled. “You can work full time but not have the money to fix your teeth – visible reminders of the divide between rich and poor.”

http://www.washingtonpost.com/sf/national/2017/05/13/the-painful-truth-about-teeth/?utm_term=.742b49e104cb
Mass Emergencies 1946-91 Belgium (10mil inh)

1083 dead

1915 injured
(Oostmalle 1967: 150; Heizel 1985: 500)

Prehospital Emergency Medical Interventions
±300,000/yr (1999)

Medical Emergency Calls
2,627,864/yr (2001)
Myth 2: focus on “health hazards”

An adequate response model for EOPHC requires the integration of
multiple dimensions of health and
the complexity of health determinants
as well as the involvement of people affected and the wider
community

**health determinants**

- biomedical determinants of health
- psychosocial* determinants of health

* refer to both specific features and pathways by which societal conditions affect health
(http://www.who.int/social_determinants/en/)
physical, emotional, social, mental, spiritual, and environmental dimensions of health
health dynamics/development

status T1

status T2

status Tx

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2: EOPHC binomial health core: public health impact & response of health services

(extra-ordinary) event, incident, accident, process, threat, ...

health determinants

health status
community level

impact on public health

PH consequences of disaster
PICE, ME, MCI
PH emergency / PH crisis syndrome

health needs presentation

health interventions

health services ESF

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US EPA-OSHA “any substance that can produce an adverse effect on the health or safety of the persons exposed…” *hazard categories*

- **Fire Hazard**
  - Flammable
  - Combustible Liquid
  - Pyrophoric
  - Oxidizer

- **Sudden Release of Pressure**
  - Explosive
  - Compressed Gas

- **Reactive**
  - Unstable Reactive
  - Organic Peroxide
  - Water Reactive

- **Immediate (Acute) Health Hazard**
  - Highly Toxic
  - Toxic
  - Irritant
  - Sensitizer
  - Corrosive

- **Delayed (Chronic) Health Hazard**
  - Other hazardous chemicals with an adverse effect on a target organ that generally occurs rapidly as a result of short term exposure and with a short duration.
  - Carcinogens

Other hazardous chemicals with an adverse effect on a target organ that generally occurs with a certain delay as a result of short or long term exposure.
EVENT \( \rightarrow \) HAZARD(S) \( \rightarrow \) IMPACT on human environment

vulnerability / resilience \( \rightarrow \) IMPACT on human environment

(MAJOR) INCIDENT \( \rightarrow \) HEALTH HAZARD(S) \( \rightarrow \) IMPACT on health status of a community (population of individuals)

people dead, injured, psychologically affected…

health response: mitigate, reverse effect of health hazards (medical treatment…)

pathogenesis of health disaster variables, quantitative & qualitative parameters

HEALTH DISASTER
EVENT

EARTHQUAKE

- parameters (Richter Scale, Moments; Mercalli Scale \[ \sum \) magnitudes x time; Area involved)

- \( R_E \) [risk \( E \)=the probability that an earthquake will occur in Melbourne in 2007]

HAZARD

MECHANICAL ENERGY (shock wave, tsunami)

IMPACT

INCIDENT

- parameters (type & number of buildings, etc.)

- \( R_I \) [risk \( I \)=the probability that an incident will occur]

Modification e.g. Prevention

HEALTH HAZARD

mechanical pressure

exposure to heat, smoke HZM

immersion in mud/water

- parameters (e.g. pressure, temperature, HZM concentration; duration of exposure)

- \( R_H \) [risk \( H \)=the probability that a health hazard will occur]

Modification e.g. Prevention

[prevention = to keep health hazards from happening]

HEALTH IMPACT

HEALTH STATUS of a community of human individuals

Health Response: reverse or limit adverse effects of health hazards (e.g. medical treatment)

people dead, injured, psychosocially affected

trauma, burn, suffocation, undercooling
2: suggested approach for innovation in EOPHC

- understanding processes: pathogenesis of ‘disaster’/EOPHC
- timeframe & timelines
- identify functional requirements & key challenges
  - “dynamics of disproportion”
  - “information”
  - identifying non-functional requirements
- identify actors & stakeholders (“functional roles”)
- describe workflow
  - “patient journey”
  - resources & key (health-) interventions
- describe dataflow
  - critical decision making points

[Source: Seynaeve (G.) for the IMPRESS project group (Edit.). Common taxonomy and conceptual framework report D1.2 IMproving Preparedness and Response of health services in major crisis. Preliminary analysis and proposals. ECOMED, Brussel, Belgium, 2015, 390 pag. including annexes]
Myth 3: catastrophic Mass Casualty Incidents routine:

individual health needs: clinical health services

- e.g. individual medical emergency EMS
Myth 3: catastrophic Mass Casualty Incidents

*traditional approach:*
extra-ordinary situations, events, incidents, ...
with hazardous potential in general, e.g. with respect to the human
biotope, built environment, critical infrastructure, animal population ...

can result in a “**major incident**” (MI)
with minor/major impact (effect, threat) on human health / health services
possibly requiring a different approach than in routine activity (EOPHC)
Myth 3: catastrophic events-situations e.g.

- major earthquake - tsunami
- major volcanic activity (eruption, emissions)
- celestial collision/meteorite
- high winds (storm; tropical cyclone/hurricane/typhoon; tornado)
- major precipitation (rain, snow, ice, hail)
- temperature extremes (heat, cold)
- lightning
- flooding (sea, lake, river ...)
- slide (avalanches/land-, rock-, mud-... slides)
Myth 3: catastrophic events-situations e.g.

- drought, desertification, erosion
- wildfire
- structural failure / collapse of built environment
- major exposure to hazardous chemical, physical, biological agents (release HZM/CBRN/outbreak communicable disease)
- fire & explosion
- major transport/traffic (road, water, air)
- mass gatherings (music, sport ...)
- social conflict (war / armed conflict / civil strife / complex humanitarian emergency / terrorism/ sanctions / embargo)
Myth 3: catastrophic events-situations e.g.

conventional typology: based on origin of hazard/threat

- “NATURAL”
  
  geological/climatic – meteorological ..

- “MAN-MADE”
  
  technological, deliberate ...

- “complex” (mixed)

? logically coherent / facilitates understanding ?

? relevant for health impact & health services ?
traditional approach: Mass Emergency

ME = disproportion

**NEEDS**
- search & rescue
- medical & public health
- psycho-social

**RESPONSE CAPACITY**
- available resources
- organisation & coordination

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Myth 3: catastrophic Mass Casualty Incidents

traditional approach: Mass Emergency

\( = \text{DISPROPORTION} \) (imbalance) with respect to

- quantity (numbers)
- quality (nature)
- time

health NEEDS (medical, psycho-social, sanitary, public health)

between

response-CAPACITY
- available resources
- organisation & coördination

timeline: big bang vs rising tide
Myth 3: catastrophic Mass Casualty Incidents

traditional approach: “disaster health” = emergency medicine + triage

health management ME (flexible use of Core Preparedness)

1) structurered **mobilisation of** ADDITIONAL resources (material / personel)
   - reserve capacity (stock, Red Cross voluntaries, NGO)
   - from outside

2) **SPECIALISED** teams/eqouipment (e.g. HZMteam, psychosocial (PSM, RISCentre), victim identification DVI)

more EFFICIENT use of AVAILABLE resources via:
- noria (rotation of resources)
- triage
- medical “regulation”/referral
- stop non-priority activities
- avoid unnecessary initiatiatives
- cooperation (>CCC)
3 Fact: EOPHC combine 2 major challenges

1) **disproportion** between health needs & capacity health services

   **in Europe:** catastrophic MCI extremely rare; mostly major accidents

2) **uncertainty:** lack of information, confusion, controversy, ...
3 “discovering” public health emergencies
the 1999 Coca Cola™ & dioxin food crises in Belgium
a Belgian CocaCola™ story

- ? when incident crisis
- **alert**: telephone call Saturday 12/06/1999
- **confusion**
  - information on incident ?
  - crisis centre << coordination !
  - multitude of (spontaneous) initiatives
- **response**
  - call centre: (mis)inform public + collect data
  - cy: voluntary removal soft drinks from store shelves
  - authorities: banning order **all** products of Coca Cola Enterprises Belgium
first 2 days: 162 complaints Call Centre

source:

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complaints/symptoms

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1999 Coca Cola™ -incident

- June 8 dozens pupils Bornem hospitalized
- June 12 call centre & banning order
- June 16 debriefing & expert meeting
- June 17 “haemolysis”
- June 23 restart production in Belgium

Total: 249 “cases”

January 2000: epidemiologic report WIV
March 2000: final conclusions High Health Council
1999 Coca Cola™ – incident type

✓ intoxication
✓ contamination
✓ off-odours reaction
✓ MSI (mass sociogenic illness MSI)
✓ ?
1999 Coca Cola™ decision making

Coca Cola Atlanta (Belgium)
- info monopoly: toxicology reports & samples
- no independent toxicological reports of suspected samples

1) CO2 with COS (carbonylsulfide & release H2S) Wilrijk, Antwerp: bottles 20 cl

2) 4-chloro-3-methylphenol outside cans
   - cresol wooden pallets, Duinkerke (Fra)
   - chlorinated disinfectants refrigerators (28,000)

Cost product recall 60 million US$
1999 Coca Cola™ decision making

**Ministry of Health:** too late overshooting

- in/hyperactivity, internal contradictions
- call centre: active inquiry complaints (identification caller & product, free interval, symptoms)
- uncoordinated and unsystematic exchange & centralization, statistical analysis & evaluation of information of poor quality (Public Health Officers, spontaneous M.D., Poison Centre; Active Inquiry ALL hospitals)

**Particular interests** of advise & pressure groups (scientists & practitioners): jumping to conclusions & seeking publicity in media

**International:** no official communication of validated data recall in France, Latvia, Saoudia Ar, CAR, China...
1999 Coca Cola™ context

- general (historic) attitude toward authority in Belgium
- recent, mounting erosion of confidence in government & state institutions
- May 25 1999 journalists expose ‘cover up’ op dioxin contamination of animal feed
- psysoc of food, June = examination period
- limited experience with management of PH Crises (legionella outbreaks, 2 Braun™deaths)
1999
dioxin food crisis
Belgium

51
transformator
oil in
recuperated
cooking oil

28 t animal fat
4t → poultry,
24t → porcine
feed

pigs: effects?
↑ mortality poultry &
↓ egg production
chicken pr.<30%(nl 80%)+
dead & abnl

human body burden: 40-4000 extra ca?
direct economic cost: 800 million €
(half state compensations)
dioxine incidents

- 1976 Icmesa (Hoffmann-La Roche) Seveso

- ±30 compounds: polychlorinated dibenzo-p-dioxins, polychlorinated dibenzofurans and polychlorinated biphenyls (PCB)
- accumulate in fat of humans & animals

- broad range of adverse effects: enhanced tumorigenicity, enzyme induction, immune suppression and a wasting syndrome.
- most toxic congeners: TCDD (2,3,7,8-tetrachlorodibenzo-p-dioxin) & PeCDD (1,2,3,7,8-pentachlorodibenzo-p-dioxin)
food related incidents with dioxins

- 1968 Yusho (Japan) leak cooling oil in rice oil: massive mortality poultry, 500 humans dead, 30,000 affected

- 1997 anti-caking agent (clay) FDA
  2/80 chickens <4 ppb trillion
  order: 1 million poultry on hold (4 Arkansas plants shut down) & stop shipping egg producers who used the contaminated feed

- 1998 Germany eggs
international impact 1999 dioxin incident

FDA (USA)

“... all imports of eggs, products containing eggs, and game meats (FDA regulated) from Belgium, France and the Netherlands, and all animal products including animal derived medicated and non-medicated feeds, feed ingredients, and pet foods from all European countries will be detained at U.S. ports of entry. At this time, in order for products to be released from detention, importers must provide laboratory test results showing PCBs are not detectable and/or that dioxins do not exceed 1 part- per-trillion (ppt).
Food Chain control (1999)

Federal State
   Ministry of Agriculture
   Ministry of Health:
      - Institute of Veterinary Control
      - Inspection of Alimentary Products
      - Public Health Inspection
Ministry of Economy
Ministry of Employment

Regional / Community Level
   idem plus Environment Minstry

Scientific Agencies, High Commitee on Health, Poison Centre

Self-control by enterprises
lessons identified food crises 1999 Belgium

✓ not one time incidents, but signal structural problems
✓ not communication crises (political provocation; “mass hysteria”; media plot)

BUT new type of Major Incidents

different from Mass Emergency type (Major Accidents & intoxications, Mass Casualty Incidents, Disaster)

Concept of Public Health Emergency / Crisis (PHE/PHC)
major incident /EOPHC

- Mass Emergency/MCI
- Public Health Emergency/Crisis
  - disaster
  - major accident
Mass Emergency (ME)

= a major incident with a large number of people involved, causing an exceptional disproportion - in size or in time - between on the one hand the medical and psycho-social needs (in numbers and nature) and, on the other hand, the response capacity (the available resources and their organisation)
Public Health Emergency/Crisis

= a situation where there is a (actual/potential) risk of a major exposure to an unusual serious health hazard for a community (or which is perceived as such)

Rather than an acute disproportion between needs and resources, a PHE/PHC is characterised by

- inadequate information
- scientific uncertainty and/or
- public worry

about causes, character or dimensions of an unusual health problem
PHE/PHC management requires:

✓ surveillance with early detection and early warning
✓ rapid & adequate exchange of information and communication
✓ extra-ordinary decision making and swift reactions
✓ extra-ordinary & cross-border measures and control strategies
✓ follow-up research & structural measures
PHE/PHC:

- outbreaks of communicable diseases e.g. Ebola, legionella, HIV, hepatitis C, SARS, ...
- environmental toxins & PH problems of unknown nature e.g. Bijlmermeer, Enschede, Gulf & Balkan War syndrome
- toxico-infections & contamination of food chain e.g. DES, BSE, dioxin, Coca-Cola
- deficiencies medical devices, pharmaceutical & consumer products e.g. Braun, Cidex, Chinese herbs
- NRBC ‘terrorism’
PHE/PHC:

- outbreaks of communicable diseases & emerging infections e.g. Ebola, legionella, HIV, hepatitis C, SARS, pandemic flu)
- unusual/unknown toxicological problems, exposure to environmental toxins & PH problems of unknown nature (Bijlmermeer, Enschede, Balkan & Golfsyndrome,...)
- toxico-infections & contamination of food chain e.g. DES, BSE, dioxin, Coca-Cola
- errors / faults/ deficiencies consumer products, medical devices, pharmaceutical, ... e.g. Braun, Cidex, Chinese herbs
- deliberate use of conventional, toxic, nuclear, radiological or biological agents & facilities (NRBC ‘terrorism’)
1992-93 Food Poisoning Western USA

fast-food hamburgers responsible for
>700 cases of illness
death of 4 children
cause:
meat contaminated by animal waste containing *E. coli O157:H7*
communicable disease outbreaks/epidemics

- 1993 > 400,000 lake Milwaukee Cryptosporidiosis
- 1993 healthy Navajo adults hantavirus
- prion BSE
- 2001 anthrax hoax B

emerging infections?
- SARS
- what about malaria, HIV, viral hepatitis?
Pandemic threat?

1918 influenza 675,000 dead USA
PH Crisis

PH Incidents

Structural Problems related to Public Health
PHC lessons identified

1) improve **surveillance** system (early detection, identification, warning) for day to day incidents

2) establish central **health focal point** for centralisation and vertical integration, and triage of critical information for all health related incidents (food security, pharmacovigilance, communicable diseases, safety consumer products, environmental pollution,...)

3) build **crisis (infra)structure & team** for PHE for rapid response (standardised measures for control, containment, sanitation, treatment) and enforcement of PH laws

4) prepare efficient communication, **exchange** of information and mobilisation of experience with PH scientists & Health Care Workers

5) prepare efficient & open **communication** with mass media

6) ensure **cross border** communication & cooperation (European CDC, FDA & EU Health Safety Committee)

7) reinforce independent PH **research** (management, epidemiology, ...) expert networks, reference & knowledge centers
Myth 4: first responders = on site/prehospital

traditional approach:
“disaster medicine” = emergency medicine + (on-site) triage
ICS-type coordination of prehospital EMS with other Emergency Support Functions (ESF)
4 Facts

- the best place for a (critically ill/seriously injured) patient is in an adequate hospital unit, NOT in a tent on site/casualty clearing station
- inadequate mobilization of prehospital resources often results in “overkill”
- casualties/persons affected in a MCI/ME do not wait for C&C structure & first responders to arrive on scene to be triaged, but take initiatives, move, and get support of bystanders/the community
- the needs and perceptions people affected in a MCI/ME may differ from/conflict with (theoretical/official) intervention plans, action cards, C&C rules, ... (e.g. separate parents & children in triage categories)
1. liaise leaders other ESF (CC-OPS)
2. debriefing first EMS arrival
3. medical balance sheet
   - localization & severity
   - reinforcement needs
   - duration of operations
4. regrouping of victims
   - avoid wild evacuations
   - installation of AMP / CCS
5. rescue of victims:
   - elementary gestures of survival (BLS)
   - sweeping tri (color discs, START,...)
6. triage:
   - identification
   - cards /colours T1, T2, T3,T4
7. conditioning for evacuation
   - elementary techniques (BLS->ALS life support)
   - stabilization gestures
   - analgesia
   - wound protection
   - appropriate surveillance
ICE train accident, 3/6/1998, 11h, Eschede, Germany

- 96 dead on scene
- 176 limbs and body parts recovered
- 87 injured persons transported
  - (26 with helicopter)
  - (5 patients died later in hospital)
- after 50 min.: start of individual medical treatment
- after 60 min.: start of coordinated transport
- after 100 min.: sufficient transport capacities available
- 14:45 no more casualities at the scene

Bis zu diesem Zeitpunkt ist der Zustrom von Rettungs- und Sanitätsdiensten auf eine Stärke von ca. 450 Personen mit fast 80 Fahrzeugen angestiegen, etwa 80 Ärzte vor Ort und über 38 Fluggeräte im Einsatz zum Teil als freiwillige Helfer, insbesondere aber auch ohne Anforderung und Anmeldung über die Leitstelle oder örtliche Einsatzleitung. „overkill“
4: too much of a good thing

N° units blood collected in USA > Sept 1, 2001:
475,000

N° units used by victims: 258

shelf life of whole blood:
42 days

estimated cost of collecting and processing excess blood supplies: $500,000
4 Facts: «triage » for E&T, rarely in real MCI/ME

Antwerpen, Belgium, Switel Hotel fire, Dec 31, 1994
- < 10 % stretcher transport
- 110 ‘wild’ evacuated victims (77 %) vs 33 after triage

Volendam, The Netherlands, Ten Hemel Cafe fire, Jan 1, 2001
- 113 ‘wild’ evacuations (46 %)

Result: **first response to MCI/ME predominantly in A&ED/hospitals** (unless immobilized patients/remote areas)
Accident & Emergency Department

- Service Completion (sent to other department)
- Blocked (Ambulance Diversion)
- arrivals

- Reception
- Triage
- Internal Queue
- Surgical Queue
- Acute, Walking
- Efficiency
- Quality
- Orthopedic Queue
- Interns
- Imaging Laboratory
- Experts
- Physicians

- Waiting Time (Active Dashboard)
- (High turnovers Medical-Staff shortage)

- Stretcher Walking
- LWBS
- Returns
- "Lost" Patients
- Returns (Old or New Problem)
- hospital
- home

[Source: Mandelbaum, Technion – Israel Institute of Technolog - Service Engineering]

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ME Management: adequate BALANCE

- exceptional ⇄ daily routine
  standing reserve, extra-ordinary resources ⇄ upscaling & organisat. adaptations
  volunteers ⇄ health professionals
  doctrine, preplan. protocols & procedures ⇄ experience & professional judgement

- phases: immediate ↝ short ↝ medium ↝ long term

- specific scenarios ⇄ core preparedness
  extra-ordinary expertise & specialised resources ⇄ multidisciplinary synergies

- prehospital (scene) ⇄ hospital institutions & social services

- scoop& run ⇄ stay & play
Myth 5: lessons learnt

traditional phases of Disaster (Risk) Management

- Alert, Preparedness, Response, Prevention, Mitigation, Rehabilitation [CERO]
- Prevent, Prepare, Crisis, Assess [gisthai.org]
- mitigation efforts, preparedness, response phase, recovery phase [Brian K. Richardson Univ North Texas]
- emergency, restoration, reconstruction, revival, symbolic recovery phases [(LaPlante 1988]
- Pre-Disaster (Disaster Mitigation and Prevention, Preparedness for Relief), Post-Disaster (Relief, Short-term Rehabilitation, Reconstruction) [reliefweb.int-ocha]
Myth 5: (theoretical) MIManagement cycle

*NOT proces stages of a developing of event /disaster “hazard cycle”, “disaster cycle”*
**DEVELOPING NATIONAL SECURITY & COMMUNITY SAFETY** “Culture of Safety” (Twigg)

**PREPARE & REDUCE**

**ADDRESS**

**BUILD**

+ NATIONAL DISASTER RESILIENCE (COAG, February, 2011)

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**SYSTEM LEVEL LEADERSHIP**

Government (sovereign right) & NGO

Governance, funding, infrastructure, plans, coordination, communication, research, standards, training, Monitor & QA, facilitate, update

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**COMMUNITY VULNERABILITY ASSESSMENTS**

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**COMMUNITY VULNERABILITY**

---

**LANGUAGE OF DISASTERS**

**Basic Societal functions**

‘Clusters’

“Community capital”

- Social
- Economic
- Human
- Physical
- Natural

(Ref: Mayunga, 2007)

- Communication

**Community Competence**

**Community Wellness**

(Ref: WaDEM (2003), Daily 2010, © DCEHPP, 2011)

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**PRE-EVENT STATUS**

- SOCIETY

---

**PRE-EVENT**

---

**DAMAGE**

---

**HAZARD**

---

**EVENT**

---

**DISTURBANCES**

---

**CONSEQUENCES**

---

**CHANGE IN FUNCTIONS**

---

**RESPONSE**

---

**RECOVERY**

---

**ADAPTIVE CAPACITY**

---

**CAPACITY ASSESSMENTS**

---

**PREVENTION**

---

**Absorbing**

---

**Mitigation**

---

**Recovery**

---

**Post-EVENT STATUS**

- SOCIETY

---

**Recovery**
preparedness:
  - planning
  - education & training
  - exercise

health response
  - immediate
  - transition phase
  - long term
  - recovery & revalidation

evaluation

feedback

control & mitigation

risk assessment

prevention & pro-action
Myth 5: lessons learnt

- EOPHC are rare: there is no accumulation of ‘experience’ by health professionals (in contrast to ‘clinical’ skills)

- EOPHC statistics & epidemiology are poor (e.g. no relevant details in CRED database)

- record keeping, data collection, common registration standards (quality indicators, performance measurement, benchmarking criteria) of EOPHC-response activities are lacking

- insufficient systematic evaluation (debriefing, SITREPs, critical analysis, assessment, lessons identified) of health service activities in EOPHC or non public (culture of failure, liability, etc.) and research

- inadequate feedback & future improvement with respect to preparedness

- education & training is not evidence-based
Myth 5: lessons identified

An evidence based approach and innavtive technology requires indicators, common structure and/or standards for (data) reporting& evaluation, e.g.

- Utstein template (Sundnes (K.O.), Birnbaum (M.L.) (Edit.). Task Force for Quality Control of Disaster Medicine (TFQCDM). Health Disaster Management: Guidelines for Evaluation and Research in the “Utstein Style”. Prehospital and Disaster Medicine, 17 (S3), 2003, pag. 1-167.)
- Education Committee: international standards & guidelines (Seynaeve & Archer, 2007 PDM 22 (2); 120-128 & 2006 PDM 21 (3); 156-167)
<table>
<thead>
<tr>
<th>individual-clinical level</th>
<th>health service activity</th>
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<tbody>
<tr>
<td>demographics</td>
<td>event notification</td>
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<tr>
<td>intervention times</td>
<td>activation of the health emergency management plan</td>
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<tr>
<td>diagnosis</td>
<td>emergency medical operations coordination</td>
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<tr>
<td>clinical data / initial observations</td>
<td>on-site triage process</td>
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<tr>
<td>intervention</td>
<td>on-site health care</td>
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<td></td>
<td>scene casualty clearance</td>
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<td></td>
<td>distribution of ill/injured survivors</td>
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<td>triage upon arrival at the healthcare facility</td>
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<td></td>
<td>responder safety and health</td>
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<td>deactivation of operational plan</td>
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<tr>
<td></td>
<td>continuity of care for non-disaster-related ill and injured patients</td>
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<tr>
<td></td>
<td>emergency department resource utilization</td>
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<td></td>
<td>hospital resources utilization</td>
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<td></td>
<td>outcome indicators measuring morbidity</td>
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</tbody>
</table>
concluding suggestions for ‘innovation’ in EOPHC response

1. Awareness that activities & resources for EOPHC are NOT based on scientific risk-assessments, BUT influenced by corporate & private interests: functioning of our societies (market economy) are characterised by partial rationality & global irrationality as well as contradictions & conflicts

2. The concept of an Extra-Ordinary Public Health Challenge (EOPHC) covers an extra-ordinary situation affecting the health status of a community or relevant for the health services, which requires a particular approach and special arrangements, which are qualitatively different than those of routine activities.
concluding suggestions for ‘innovation’ in EOPHC response

3. EOPHC combine 2 major challenges: not only a disproportion between health needs & capacity health services, but also factors of uncertainty with lack of information, confusion, public worry ans-d (scientific) controversy, ...

4. Most EOPHC in Europe are major accidents, with special arrangement not only for on-site responders but especially for critical hospital units and public health agencies

5. Identifying lessons from previous EOPHC require systematic collection of data with common criteria and standards for record keeping in view of critical evaluation and possible feedback for future preparedness
Thank you for your attention

geert.seynaeve@attentia.be