Global health-care facilities their monitoring and adequacy to cope with extreme environmental emergencies and ... (... under severe epidemics)

Andreas Skouloudis
21 days in lockdown (expected 34 days more)

John Balbus
National Inst. of Environmental Health Sciences
11 days (in partial) lockdown

27 Mar. 2020

Data ... from the evolving ITL 2020 outbreak.

From the daily epidemic bulletin on 26 Mar 2020, 6pm:

- 600-650 daily deaths, (with 35+ hospital doctors in total with pensioners and reserves called in).
- 3,000+ daily new cases;
- ~900 daily cured cases;
- Need of 100 million masks/month (only in Italy for March), 10000+ respiratory ventilators, hundreds of medium and intensive care beds;
- Diagnostic samples (30-40€ per sample), rapid confirmation method, Medicines for fever and respiratory diseases;
Emergency Hospitals constructed (at ...exhibition buildings)

**Components:**
- Facility and its management.
- Physical infrastructure.
- Outreach services.
- Supply facilities systems.
- Disposal systems.
- Technical medical equipment.
- Information Communication Technology.
  (Adaptation capabilities for outbreaks)
  (New concept of sensitive/reliable data)

https://www.youtube.com/watch?v=ZicURsm2Q8c

GEO Health Community of Practice (EO4HEALTH 2020-2022)
...and the need of horizontal collaboration several teams

**Elements not considered yet:**
**Geolocation of cases and current weather conditions.**

- Mobile phones useful for lockout compliance (e.g. Greece linear instead of exponential growth) but not for verification of social transmission.
- Exponential, linear or contained increases are location and not country specific.
- Neither numerator (cases-testing problems) or denominator (population movement) data are very reliable. Variation in testing strategies complicates national level comparisons.
- Areas with small temp variations and low humidity seem to be less influenced.

<table>
<thead>
<tr>
<th>Region</th>
<th>Recuperati con sintomi</th>
<th>Terapia intensiva</th>
<th>Isolamento domiciliare</th>
<th>Totale attualmente positivi</th>
<th>Dimesi/Guariti</th>
<th>Deceduti</th>
<th>Casi totali</th>
<th>Tamponi</th>
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</table>
Big-data for efficient handling of emergencies @ the GEO Health Community of Practice

Assessment of population health care capabilities (associated with environmental exposure).

Adequacy of health care infrastructure facilities under usual and acute events (10% fatality instead of 3.5%).

Testing of health infrastructure needs during humanitarian interventions.

Coupled remote sensing with static in-situ observations for real-time processes (not relevant to virus but for the aftermath effects).

Moving population densities (with e-passports) and

Assessment and adaptation of health needs (intelligent with in-situ technologies).

https://twitter.com/davcarretta/status/1238791068071661568