

PhD 5.1.2e - Studies done or in progress, and future plans

Done

1. Review of learning methods used in infectious disease control, with a focus on cross-border settings (published)
2. Training needs for response at points of entry (submitted)
3. Competency profile for response at airports (published)

In progress

4. Essay on needs for system change in the international disease control. Implications still unknown, may contain parts of the introduction / discussion.
5. Vulnerability factors of points of entry: review, interviews/brainstorms, PAPRIKA method.
 - a. **Future options:** What to do?
6. COVID-19 response at PoE, interview study – main paper focused on operationalization

Future options (in line) with these data:

 - a. country study for the Netherlands, and/or 5.1.2a (if more interviews are being performed) focused on the organization of the response
 - i. option here-in is to adhere the organization study to this setting
 1. interviews + network analysis
 2. observation + interviews + network analysis
 - b. 5.1.2a

The overall picture of the PhD trajectory

The mortality and morbidity and social disruption of globally spreading of contagious diseases is a danger for human individuals and humankind as a whole. With an decreasing wild life diversity and increase global connection the risk on severe pandemics to grow bigger. Therefore, the importance of preventing global spread of contagious diseases also increases, through early detection and isolation of people and goods. Although contagious diseases do not respect country borders, and travel and trade or globally – which is very explicit within the Schengen area - , still the responsibility of early detection and isolation remains countries' responsibility. This means that in the light of international outbreaks or pandemics, the responsibility for the response shifts at country borders, such as international land-borders, ports and airports (points of entry (POEs)). Appropriate capacities and capabilities at POEs, as well as effective local communication and organization structures to connect to the national response, and, at the same time, a minimal burden on the international travel and trade is essential in the global response.

However, in the light of the high impact of international outbreaks, but the low chance they occur, there is a paradox between international and national approaches. On the one hand, international (European and global) laws and regulations, have been designed to serve the common interest of preventing the high impact of disease outbreaks and facilitating trade, and, on the other hand, the single country's interest to protect the own public and to make efficient use of capacity and resources.

We briefly summarize the antithesis in the global infectious disease response discourse:

- Serving the own vs the common good: Public health professionals at points of entry have

- bipartite duties, serving the nation, the European, and the broader international community
- Preparing for a 'low chance - high impact' event: Outbreaks of infectious diseases do not occur often, but have high impact if they occur. The public health organization at points of entry is often loaded with lots of other daily tasks and need to switch to response in the low chance events that something happens. They invest in preparedness, but preparedness switching to response is very hard.
 - Inter-organizational dependencies: Many organizations are involved in case of an infectious disease event locally, all with interest that also cover local business and economic and social fields.
 - International dependency: Policy and response of different countries influence each other while there is no powerful way of aligning these policies. This is especially the case within the Schengen area where people can enter all other countries once inside.
 - Rigor vs. flexibility in the system. All of the above makes the organization of response complex, and therefore inflexible. With infectious disease control and social welfare closely linked, however, a flexible and tailored response is required.

The current body of literature and guidelines on infectious disease response at points of entry does not sufficiently acknowledge the complexity of this environment, but instead focus on one size fits all recommendations such as prescribing available capacities and minimal requirements. An effective organizational approach among all stakeholders involved is still largely lacking. Therefore, my PhD contributes to a more effective response to internationally spreading infectious diseases at European points of entry (airport, ports, ground-crossings), from a workforce and organizational approach.

Working from an individual to an organization perspective we aim to the following studies:

Preparing on paper

1. To define effective learning methods in infectious disease control separating aims on several levels (reaction, learning, behaviour, and the system) by means of a literature review;
2. To define major learning needs among the workforce by means of a training needs assessment via a questionnaire disseminated among the European workforce;
3. To define what competences should be learned at airports by aggregating expert views during a Delphi method;

Responding in reality

4. Learning during COVID-19, the European Case evaluation from the individual professional's perspective: how did the response go, what should be enhanced based upon the shared experience during the COVID-19 pandemic; Directions for change.
5. COVID-19, case evaluation from an organizational perspective. What does the organization of the response look like? how could the organization of the workforce be enhanced (comparing the actual situation at points of entry vs. a theoretical 'ought' situation). We define here the local (cold) structure and the crisis organization, of which the latter is subdivided in known/unknowns, and unknown unknowns (like COVID).
Unknown/Unknowns: Since the European system is overwhelmed by COVID, when could we have recognized that it was bigger than thought?