Data Sources for Informative Content Needs Supporting Rapid Risk Assessment of Acute Public Health Events (ICN-RRA)

An inventory of useful sources of information for RRA

Lorenzo Ortega, M R (Dr), Doherty, B

2018
## Contents

1 Introduction ................................................................................................................... 7

2 Data Sources for ICN-RRA ............................................................................................ 8
   2.1 Agent and Disease ..................................................................................................... 8
      2.1.1 Background ....................................................................................................... 8
      2.1.2 Epidemiological Profile (Worldwide) ................................................................. 9
      2.1.3 Epidemiological profile (Local) .......................................................................... 10
      2.1.4 Disease Expertise ............................................................................................. 10
   2.2 Host Assessment ....................................................................................................... 11
      2.2.1 Demographical profile ....................................................................................... 12
      2.2.2 Population Health Status .................................................................................. 14
      2.2.3 Social and cultural aspects ................................................................................ 16
   2.3 Context ..................................................................................................................... 17
      2.3.1 Human Health Care System ............................................................................. 17
      2.3.2 Animal Health Sector ....................................................................................... 21
      2.3.3 Medical Entomology ......................................................................................... 21
      2.3.4 Geophysical Profile .......................................................................................... 22
      2.3.5 Climate Information .......................................................................................... 24
      2.3.6 Infrastructure ..................................................................................................... 24
      2.3.7 Economy ............................................................................................................ 25
      2.3.8 Socio-political information and others. ............................................................... 25

3 Table of Sources ............................................................................................................. 27

4 Conclusions .................................................................................................................... 39

References ......................................................................................................................... 40

List of tables ....................................................................................................................... 41
**Foreword**

This document tries to give a practical support to the work done by Dr. Jas Mantero (1) on Identification for Informative Content Needs supporting Rapid Risk Assessment of Acute Public Health Events (ICN-RRA) (https://ec.europa.eu/jrc/en/publication/identification-informative-content-needs-supporting-rapid-risk-assessment-acute-public-health-events). It tries to offer the data sources where to find answers to the questions asked by health experts when they are making a rapid risk evaluation of acute public health event. The information obtained is divided on three main parts: The information related to agent and disease, the information about the potentially host of that disease and the information about the social and other contexts of this population threatened. These three main parts are divided on other parts to facilitate the classification of the information.

---

Acknowledgements

The authors would like to thank Montserrat Marin-Ferrer, Jas Mantero and other colleagues in the Disaster Risk Management Unit of the Joint Research Centre of the European Commission. We would also like to thank Dra. Blanca O´Donnell Cortés of "Virgen de la Victoria" University Hospital who acted as supervisor to Dr Lorenzo-Ortega.

Authors

Dr Maria Del Rocio Lorenzo Ortega,

- Preventive Medicine Unit. Virgen de la Victoria Hospital. Málaga. España
- Preventive Medicine, Public Health and History of Science Department. Malaga University. Málaga. España

Brian Doherty, Directorate E - Space, Security and Migration- Disaster Risk Management Unit (E.1) -European Commission – Joint Research Centre
Abstract

Risk Assessment is considered a key part of the risk management cycle and can be defined as a process aiming to establish a level of risk for a population in relation to a specific event.

In public health, Risk Assessment implies an evaluation of a risk in terms of health for a human population exposed, or potentially exposed, to a threat. In case of outbreaks and other acute public health events, the process is commonly defined within the scientific community as a “Rapid Risk Assessment of Acute Public Health Events” (RRA).

RRA consists in an overall process of identification, analysis and evaluation of a risk for a defined human population in relation to an acute public health event. The process is performed by health organisations for health emergencies requiring immediate response and aims specifically to define possible actions to be promptly taken in order to control or mitigate the overall health risk for a population.

One of the key foundations of the RRA process is the systematic collection and documentation of reliable information about an event, the related cause, the population exposed and the specific context of occurrence. This document looks in detail at possible sources of the data previously identified in the technical report written by Dr. Jas Mantero on Identification for Informative Content Needs supporting Rapid Risk Assessment of Acute Public Health Events (ICN-RRA) (https://ec.europa.eu/jrc/en/publication/identification-informative-content-needs-supporting-rapid-risk-assessment-acute-public-health-events).
1 Introduction

Risk Assessment is considered a key part of the risk management cycle and can be defined as a process aiming to establish a level of risk for a population in relation to a specific event.

In public health, Risk Assessment implies an evaluation of a risk in terms of health for a human population exposed, or potentially exposed, to a threat. In case of outbreaks and other acute public health events, the process is commonly defined within the scientific community as a “Rapid Risk Assessment of Acute Public Health Events” (RRA).

RRA consists in an overall process of identification, analysis and evaluation of a risk for a defined human population in relation to an acute public health event. The process is performed by health organisations for health emergencies requiring immediate response and aims specifically to define possible actions to be promptly taken in order to control or mitigate the overall health risk for a population.

One of the key foundations of the RRA process is the systematic collection and documentation of reliable information about an event, the related cause, the population exposed and the specific context of occurrence.

At European Union (EU) level, the European Centre for Disease Prevention & Control (ECDC) is responsible for producing independent assessment of “risk to human health related to acute public health events associated with communicable diseases and outbreaks of unknown origin presenting EU relevance. Results of ECDC RRAs are made available to the European Commission and EU national health authorities through a secure restricted online platform (the Early Warning and Response System, EWRS); In addition to this activity, ECDC supports the health authorities of EU member states in developing their own risk assessment capacities at national level.

The other crucial public health international actor involved in RRA activities is the World Health Organisation (WHO). WHO performs this activity in the context of a multi-hazard approach and the risk is evaluated for events requiring immediate response potentially caused by any agent, i.e. biological, chemical, radio nuclear hazards and natural disasters. The WHO process is driven by the International Health Regulations (IHR, 2005) that require countries to develop their own internal RRA core capacities at national and at subnational level.

The European Commission Joint Research Centre (JRC) has a long experience in supporting health organisations on early detection and RRA activities. The ultimate initiative supported by JRC has been the finalization of a highly efficient system supporting epidemic intelligence in terms of threat detection, event monitoring and also a deeper level of risk assessment process, all in an adaptable way to the needs at national and international level of each organisation. The new system is called Epidemic Intelligence from Open Sources” (EIOS) and represents an example of collaborations in RRA activities among health experts.

The EIOS system is based on the systematic detection of events through various sources, formal and informal. With the advent of communication technologies, the first news of outbreaks is originated in electronic media. More than 60% of reports of outbreaks come from informal sources, which need verification. The work done by the EIOS system consists of detecting these media events and evaluating them, to assess their veracity and risk. It focuses primarily on communicable diseases, but also identifies related conditions, such as food and water safety and chemical events.

When a significant acute public health event occurs, health organisations performing RRA activities need to be able to promptly and appropriately describe key characteristics related to: the possible cause and the specific health condition implicated, the affected population, the overall context of occurrence of the event. This multidisciplinary informative need is collectively referred as “Informative Content Needs supporting RRA” (INC-RRA).
2 Data Sources for ICN-RRA

2.1 Agent and Disease

For practical reasons, in our classification Agent and the related Disease are considered to be in the same domain of information and refer to the biological characteristics of the infectious microorganism potentially involved and to the basic description of the related health condition that may occur.

Table 1, Agent and Disease Components

<table>
<thead>
<tr>
<th>AGENT AND DISEASE</th>
<th>AGENT AND DISEASE BACKGROUND</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EPIDEMIOLOGICAL PROFILE (WORLDWIDE)</td>
</tr>
<tr>
<td></td>
<td>EPIDEMIOLOGICAL PROFILE (LOCAL)</td>
</tr>
<tr>
<td></td>
<td>DISEASE EXPERTISE</td>
</tr>
</tbody>
</table>

2.1.1 Background

A basic description of the potential bio agent. It includes specific details on its nature, pathogenicity, virulence, transmission, circulating strains and available diagnostic possibilities. It includes also information about the clinical presentation of the related disease, information about available treatments and prognosis and about public heath response, control measures and mitigation actions.

2.1.1.1 WHO

http://www.who.int/mediacentre/factsheets/en/
http://www.who.int/emergencies/diseases/en/

There are two pages of the WHO where we can find a list of diseases. If we select one individual disease, we can find a short description about it: agent, symptoms, diagnosis and treatment. The information is only available online, and it is qualitative information. The last updates depend on the particular disease.

2.1.1.2 ECDC


These examples are very similar to the previous one. There is a list of infectious diseases. After choosing one of them, you can find a short description about the disease: agent, symptoms, diagnosis and treatment. You can find also different reports about epidemiological situation of the disease. The information is only available online, and it is qualitative information. The last updates depend on the particular disease.
2.1.1.1.3 CDC
https://www.cdc.gov/az/a.html
This page is also very similar to the previous one, but it is orientated to the US diseases. The information is only available online, and it is qualitative information. The last update date depends on the disease.

2.1.1.1.4 Department of Health Australian Government
It is the Department of Health of Australia web. It shows a few information about the disease, but it is not systematic, and the contents depend on the disease. There is general information and very limited specific data. The information is only available online, and it is qualitative information. The last update date depends on the disease.

2.1.1.1.5 Public Health Agency of Canada
It is general information, not targeted to health specialist. The information is only available online, and it is qualitative information. The last update date depends on the disease.

2.1.2 Epidemiological Profile (Worldwide)
This component refers to specific data on the disease occurrence, mainly in terms of morbidity and mortality, in order to have an overall picture of the epidemiological situation.

2.1.2.1.1 WHO
http://apps.who.int/globalatlas/
This is a WHO platform to analyse and compare standardized data and statistics for infectious diseases at country, regional, and global levels, but is not currently very useful. It is not updated regularly and refers only to a few diseases. Downloaded data in excel is available and it is quantitative information.

2.1.2.1.2 WHO
http://www.who.int/ith/en/
This is a WHO publication concerning the principal infectious diseases around the world: transmission, epidemiology and distribution. Information about vector borne diseases and their world distribution can be found also. The whole publication was updated in 2012 but a few sections have been updated more recently. Downloaded data in pdf is available, and it provides quantitative and qualitative information.

2.1.2.1.3 ECDC
It is about different reports about epidemiological situation of the disease. There are qualitative and quantitative information. Downloaded data in pdf is available. Last updated on 2014 vs 2015, depending on the disease.

2.1.2.1.4 ECDC
This is a webpage with data on the epidemiological profile of the diseases in EU countries. The information only covers EU members. There is qualitative and quantitative information. Data is available to download. Last updates depend on the disease.

2.1.2.1.5 Global health Data Exchange
http://ghdx.healthdata.org/
This is a data catalogue created and supported by IHME (The Institute for Health Metrics and Evaluation) an independent global health research centre at the University of Washington. It provides information on global health and demography by country and offers reports about different subjects related to country profiles.

2.1.2.1.6 Eurosurveillance
http://www.eurosurveillance.org/
This is a European journal on infectious disease surveillance, epidemiology, prevention and control. You can find reports about outbreaks and different epidemiological situations in the world. There are articles and reports but not for all diseases. The information is available online but also in downloaded pdf, and it is qualitative information. The last updates depend on the disease.

2.1.2.1.7 Relief Web
https://reliefweb.int/
Relief Web is an online source for reliable and timely humanitarian information on global crises and disasters. We can find reports about the current outbreaks and disasters over the world: Maps, report sand infographics. The information is available online but you can also download pdf versions of reports and maps. It is qualitative and quantitative information. The website is updated daily, but each report depends on the outbreak.

2.1.2.1.8 ProMED
https://www.promedmail.org/
ProMED is an Internet-based reporting system dedicated to rapid global dissemination of information on outbreaks of infectious diseases and acute exposures to toxins that affect human health. It only provides current alerts and includes grey sources too (not official info). Only online information is available. It is qualitative and quantitative information. The website is updated daily, but each report depends on the outbreak.

2.1.3 Epidemiological profile (Local)
This component is strongly related to that described in the previous section but refers to specific countries and areas of occurrence of an event, or neighbouring regions. Particular attention should be dedicated to the presence of in situ local surveillance systems and documentation from other health actors active at local level.

Finding this information will require ad-hoc contact with local NGOs or IHR points in place.

2.1.4 Disease Expertise
This component refers to a list of subject matter experts. It would promote collaboration among organizations on some of the most technical aspects of the event.
2.2 Host Assessment

This item refers to informative requirements related to the human population that may be exposed to the pathogen. More specifically, it refers to a large variety of factors intrinsic to the host and able to influence exposure, susceptibility and response to the causative agent. For practical reasons, the INC-RRA related to this component has been classified in three main informative domains, as summarised in the table below.

**Table 2, Host information components**

<table>
<thead>
<tr>
<th>DEMOGRAPHICAL PROFILE</th>
<th>HOST</th>
<th>POPULATION HEALTH STATUS</th>
<th>SOCIAL AND CULTURAL ASPECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population size</td>
<td></td>
<td>Morbidity (main causes)</td>
<td>Trustworthiness of institutions; education; corruption</td>
</tr>
<tr>
<td>Population density</td>
<td></td>
<td>Mortality (main causes)</td>
<td></td>
</tr>
<tr>
<td>Birth and death rates</td>
<td></td>
<td>Life expectancy</td>
<td></td>
</tr>
<tr>
<td>Age distribution</td>
<td></td>
<td>Nutritional status</td>
<td></td>
</tr>
<tr>
<td>Sex ratio</td>
<td></td>
<td>Reproductive health indicators: Maternal mortality, new born mortality...</td>
<td></td>
</tr>
<tr>
<td>Urban and rural composition</td>
<td></td>
<td>Vaccine coverage</td>
<td></td>
</tr>
<tr>
<td>Internal movements (also external)</td>
<td></td>
<td>Measles</td>
<td></td>
</tr>
<tr>
<td>Other population movements</td>
<td></td>
<td>BCG</td>
<td></td>
</tr>
<tr>
<td>Morbidity (main causes)</td>
<td></td>
<td>Hib</td>
<td></td>
</tr>
<tr>
<td>Mortality (main causes)</td>
<td></td>
<td>Polio</td>
<td></td>
</tr>
<tr>
<td>Life expectancy</td>
<td></td>
<td>PCV</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rotav</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>HepB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>DPT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Japanese Encephalitis</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MenA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rub</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tetan</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yellow fever</td>
<td></td>
</tr>
</tbody>
</table>
2.2.1 Demographical profile

It is an important informative component to define a health risk for individuals potentially exposed to a disease. There are several types of data that may contribute. The following is a list of potential useful demographic data sets and can refer to real or estimated values.

2.2.1.1 Population size

2.2.1.1.1 The World Bank

https://data.worldbank.org/indicator

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, las updated in 2017.

2.2.1.2 Population density

2.2.1.2.1 The World Bank

https://data.worldbank.org/indicator

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, las updated in 2017.

2.2.1.2.2 GHSL

http://ghsl.jrc.ec.europa.eu/

The GHSL is an open and free tool for assessing the human presence on the planet. It produces new global spatial information, evidence-based analytics and knowledge describing the human presence on the planet and operates with an open and free data and methods access policy (open input, open method, open output).

It is supported by the Joint Research Centre (JRC) and the DG for Regional Development (DG REGIO) of the European Commission, together with the international partnership GEO Human Planet Initiative.

2.2.1.3 Birth and death rates

2.2.1.3.1 The World Bank

https://data.worldbank.org/indicator

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, las updated in 2017.

2.2.1.4 Age distribution

2.2.1.4.1 The World Bank

https://data.worldbank.org/indicator

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, las updated in 2017.

2.2.1.5 Gender ratio

2.2.1.5.1 The World Bank

https://data.worldbank.org/indicator
The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, last updated in 2017.

**2.2.1.6 Urban and rural composition**

2.2.1.6.1 The World Bank  
[https://data.worldbank.org/indicator](https://data.worldbank.org/indicator)

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, las updated in 2017.

**2.2.1.7 Population movements**

2.2.1.7.1 UNHCR  

The website of the United Nations refugee agency offers quantitative and qualitative information in real time for ongoing crisis in API/json format, daily updated.

2.2.1.7.2 IOM: report 2018: chapter 2  

The global migration report 2018 is an International Organization for Migration publication. Chapter 2 provides an overview of global data and trends on international migrants and international migration. It offers qualitative and quantitative information global and by country. It is available on Pdf format and updated in 2018.

2.2.1.7.3 IOM: Global migration flow  
[https://www.iom.int/world-migration](https://www.iom.int/world-migration)

It is a webpage from the International Organization for Migration that offers an interactive map to show information about people movements by country. It is quantitative information only available online. It has been updated in 2015.

2.2.1.7.4 Displacement Tracking Matrix  

This is a system to track and monitor the displacement and mobility of a population from the International Organization for Migration. It also offers information about intra-national movements, but only for a few countries. It is quantitative information only available online and updated daily.

2.2.1.7.5 Internal Displacement Monitoring Center  
[http://www.internal-displacement.org/database](http://www.internal-displacement.org/database)

This is a website that provides credible data on internal displacement worldwide. It offers quantitative and qualitative data about the quantity and the kind of displacement. It is updated twice a year, and it is available online and in Excel.

2.2.1.7.6 International conflict research  
[https://growup.ethz.ch/](https://growup.ethz.ch/)

The International Conflict Research (ICR) group at the department of Humanities, Social and Political Sciences in the Center for Comparative and International Studies (ETH Zurich) conducts research on international and domestic conflict around the world. It provides qualitative and also a some limited quantitative information. The data are
available in Pdf and online format (for download, registration needed). The last updated was in 2013.

2.2.1.7.7 Minority at risk

http://www.mar.umd.edu/mar_data.asp

“Minority at Risk“ is a Maryland University research project that monitors and analyses the status and conflicts of politically-active communal groups in all countries. It provides qualitative information about minorities. Data are available online, but some information it also in pdf.

Another important aspect to consider in terms of demography requirements for RRA purposes is the need for information at local level in areas with limited availability of data. In this case it may be necessary to rely on alternative sources such as surveys implemented by NGOs active locally.

2.2.2 Population Health Status

A population health status can be generically expressed as the description of the health outcomes of a defined group of individuals and includes, ideally, the distribution of such outcomes within the population observed. In terms of RRA, this information is relevant as it contributes in the definition of the level of vulnerability and susceptibility to an acute disease of individuals potentially exposed to a pathogen.

A set of generic indicators defining the health baseline should be identified and be based on data describing key information.

2.2.2.1 Morbidity (main causes of disease)

2.2.2.1.1 WHO

http://www.who.int/gho/countries/phl.pdf?ua=1

The WHO country health profile is a summary of the main health indicators of individual countries. It offers qualitative and quantitative information in pdf. The last update was in 2015.

2.2.2.1.2 World Health Statistics 2017


The WHO’s annual compilation of health statistics for its 194 Member States compiles data on 21 health-related Sustainable Development Goals (SDG) targets, with 35 indicators. It is available in Excel format.

2.2.2.1.3 Health at a glance 2017

http://www.oecd.org/health/health-systems/health-at-a-glance-19991312.htm

This is an OECD publication about data and trend on health indicators outcomes across the 35 OECD member states. It covers only OECD members and is available on pdf.

2.2.2.2 Mortality (main causes of deaths including population rates)

2.2.2.2.1 WHO


This is a WHO work that collects information about mortality causes and numbers, globally and by country. It is available in Excel format and it was updated on 2015.
2.2.2.2 State of health in the EU project
https://ec.europa.eu/health/state/country_profiles_en
Is it a report from the European Commission, which talks about the health systems and the health of the population of each European Union member state. It is available on pdf and was updated in 2017.

2.2.2.3 WHO Mortality database
http://www.who.int/healthinfo/mortality_data/en/
This is a database on mortality causes but only for a few countries reporting data. It is available in excel format, and it was updated on 2016.

2.2.2.4 Global Health Data Exchange: IHME
http://www.healthdata.org/results/country-profiles
This is a data catalogue created and supported by IHME (The Institute for Health Metrics and Evaluation) an independent global health research center at the University of Washington. It provides information on global health and demography. The information is available online and it was updated in 2016.

2.2.2.5 World Health Statistics 2017
It is WHO’s annual compilation of health statistics for its 194 Member States, it compiles data on 21 health-related Sustainable Development Goals (SDG) targets, with 35 indicators. It is available as a pdf.

2.2.2.6 Health at a glance 2017
http://www.oecd.org/health/health-systems/health-at-a-glance-19991312.htm
This is an OECD publication about data and trends in health indicators outcomes across the 35 OECD member states. It is available in pdf format.

2.2.2.3 Life expectancy

2.2.2.3.1 The World Bank
https://data.worldbank.org/indicator
The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, last updated in 2017.

2.2.2.3.2 World Health Statistic 2017
This refers to the WHO’s annual compilation of health statistics for its 194 Member States. It compiles data on 21 health-related Sustainable Development Goals (SDG) targets, with 35 indicators. It is available in Pdf format.

2.2.2.3.3 Health at a glance 2017
http://www.oecd.org/health/health-systems/health-at-a-glance-19991312.htm
It is an OECD publication on data and trends in health indicators outcomes across the 35 OECD member states. It is available in pdf format.
2.2.2.4 Nutritional status (using international case definitions)

2.2.2.4.1 WHO/UNICEF/The World Bank

http://www.who.int/nutgrowthdb/estimates/en/

This is a work carried out jointly by WHO, Unicef and the World Bank, which tries to estimate the malnutrition and its different states of prevalence in the world. The information is available online, in Pdf and in excel formal. It is updated on 2017.

2.2.2.4.2 WHO: Nutrition Landscape Information System: Country profile

http://apps.who.int/nutrition/landscape/report.aspx

It is a WHO webpage that offers information about the nutrition state of a country. It is available online and the last update depends on the country.

2.2.2.5 Reproductive health indicators (e.g. maternal mortality)

2.2.2.5.1 The World Bank

https://data.worldbank.org/indicator

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, last updated in 2017.

2.2.2.5.2 WHO Global Health Observatory

http://www.who.int/gho/countries/afg.pdf?ua=1

This is a WHO summary of the main health indicators of a country. It is available on Pdf, and updated on 2015.

2.2.2.6 Vaccine coverage for different Vaccine Preventable Diseases (VPDs)

2.2.2.6.1 WHO: For DTP and Measles

http://www.who.int/immunization/monitoring_surveillance/data/en/

This is a WHO webpage that offers the officially reported country data estimates of coverage as a time series. It is available in Excel format, and updated in 2017.

http://www.who.int/immunization/monitoring_surveillance/data/subnational/en/

This is a WHO webpage that offers similar information to the previous one but also includes subnational coverage data. It is available on Excel format, and updated in 2017.

2.2.2.6.2 Other

http://www.who.int/immunization/monitoring_surveillance/data/en/

This is a WHO webpage that offers the officially reported country data estimates of coverage as a time series. It is available in Excel format, and updated in 2017.

2.2.3 Social and cultural aspects

There are, however, other aspects related to the population and to individual profiles that could have an impact on the use of the available health services by a community within a country, such as education, cultural beliefs and past experience in relation to a disease. All these can be generically referred as health seeking behaviours and may be particularly relevant in specific circumstances (e.g. rural remote populations) when seeking to provide a better definition of the health risk related to an acute public health event.
Another interesting aspect in terms of the impact of socio-cultural factors on health is how health conditions are perceived in a population in general and individually, regardless of the scientific evidence. The relevance of social-cultural and anthropological factors in terms of RRA is highly dependent on the place of occurrence of an event. It may have a specific impact in the case of remote and isolated cultures that do not reflect common patterns described in most of countries.

The documentation available on this topic may be limited as this is information based on qualitative ad-hoc studies and surveys not routinely collected.

2.3 Context

The fact that this component has a potential impact on population health is governed by the principle of “determinants of health” that expresses how health status is influenced by complex interactions between individual factors (e.g. genetic and behavioural) and external aspects not always under the direct control of individuals. It refers to all the “external factors” that may affect either the agent capacity to infect or the host opportunity of exposure.

Table 3, Context data components

<table>
<thead>
<tr>
<th>CONTEXT</th>
<th>HUMAN HEALTH CARE SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health system model</td>
<td></td>
</tr>
</tbody>
</table>
| Health facilities (availability, capacity, maintenance, access...)
| Health staff (presence and capacities)
| Curative measures
| Drugs program
| Vaccination program
| Health prevention and promotion activities
| Public health response capacities
| Diagnosis capacities
| Vertical health programs
| Specific national health policies
| Health data organization
| Infectious disease surveillance capacities
| Event based surveillance capacities
| Response measures in place
| Assistance to specific target group
| Other health actors
| Welfare system and social safety net

<table>
<thead>
<tr>
<th>ANIMAL HEALTH SECTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDICAL ENTHOMOLOGY</td>
</tr>
<tr>
<td>GEOPHYSICAL PROFILE</td>
</tr>
<tr>
<td>CLIMATE INFORMATION</td>
</tr>
<tr>
<td>INFRASTRUCTURE</td>
</tr>
<tr>
<td>ECONOMY</td>
</tr>
<tr>
<td>SOCIOPOLITICAL INFORMATION AND OTHERS</td>
</tr>
</tbody>
</table>

2.3.1 Human Health Care System

This topic can be defined as the system of resources that is responsible within a community for the delivery of services aiming to improve, maintain or restore the health of individuals.

The health care system has a crucial role in the context of an acute public health event as it has a direct role in the health outcomes of the affected population. Here is list of topics that may be relevant to analyse for RRA purposes, ideally at national and subnational level.
It should also be considered that there are other relevant initiatives aiming to collect accurate information through participative based approaches in real time about health facilities, such as contact details, validation of facility locations and more general health care related data. This information, despite not commonly being validated and relying mainly on community initiatives, may represent a relevant complementary source of information in situation where details about health facilities are limited or not up to date (e.g. HealthSites).

2.3.1.1 Health system model

2.3.1.1.1 State of health in the EU project

https://ec.europa.eu/health/state/country_profiles_en

This is a report from the European Commission, which talks about the health systems and health of the population of each European Union member state. It is available in pdf format and it was updated in 2017.

2.3.1.2 Health facilities availability, capacity, maintenance and access:

2.3.1.2.1 The Global Healthsites Mapping Project

https://healthsites.io

This is a project carried out by different collaborating partners that results an online map of every health facility in the world. It is available through an API returning data in GeoJSON, KML and CSV format.

2.3.1.2.2 WHO Universal Health Coverage Data Portal

http://apps.who.int/gho/cabinet/uhc.jsp

It is a WHO webpage that offers information about health coverage and services. The data is available online and in excel format. Updated in 2015.

2.3.1.2.3 State of health in the EU project

https://ec.europa.eu/health/state/country_profiles_en

This is a report from the European Commission, which talks about the health systems and health of the population of each European Union member state. It is available in pdf format and it was updated in 2017.

2.3.1.2.4 EUROSTAT

http://ec.europa.eu/eurostat/data/database

This is the website of statistics and data from the European Commission and provides data only from EU member states. The information is also available in excel format.

2.3.1.3 Health staff:

2.3.1.3.1 State of health in the EU project

https://ec.europa.eu/health/state/country_profiles_en

This is a report from the European Commission, which talks about the health systems and health of the population of each European Union member state. It is available in pdf format and it was updated in 2017.

2.3.1.3.2 Global Health Observatory of Data

http://www.who.int/gho/health_workforce/physicians_density/en/
This is a WHO section about health data. It offers information about physician density in tables, graphs and maps. It is also available to download in excel format. The last update depends on the country.

2.3.1.3.3 World Health Statistics 2017


The WHO’s annual compilation of health statistics for its 194 Member States compiles data on 21 health-related Sustainable Development Goals (SDG) targets, with 35 indicators. It is available in Pdf format.

2.3.1.4 Curative measures in place:

2.3.1.4.1 World Health Statistics 2017


The WHO’s annual compilation of health statistics for its 194 Member States compiles data on 21 health-related Sustainable Development Goals (SDG) targets, with 35 indicators. It is available in Pdf format.

2.3.1.4.2 Global atlas of medical devices 2017


This is a WHO publication about the medical devices in all countries. It is also available in pdf format. It was last updated in 2017.

2.3.1.5 Drugs program

2.3.1.5.1 WHO

http://www.who.int/gho/mdg/medicines/en/

This WHO webpage provides information on the availability of generic medicine by country, and also the price of these medicines. It was last updated in 2015. It is also available in pdf format.

2.3.1.6 Vaccination program

This information has been very difficult to find. It will probably require ad-hoc research in the local ministry of health or in local NGOs or WHO sites when an outbreak occurs.

2.3.1.7 Health Prevention and Health Promotion activities

This information has been very difficult to find. It will probably require ad-hoc research in the local ministry of health or in local NGOs or WHO sites when an outbreak occurs.

2.3.1.8 Public Health response capacities

2.3.1.8.1 IHR Monitoring Framework

http://www.who.int/gho/ihr/en/

The IHR monitoring process, involved assessing, through a self-assessment questionnaire sent to States Parties, the implementation status of 13 core capacities in the areas of zoonotic diseases, surveillance, response, coordination, laboratory, risk communication, legislation policy, and Food safety. It is available online, but it is possible to download maps and graphs. It was last updated in 2016.
2.3.1.9 Diagnostic capacities:

2.3.1.9.1 IHR Monitoring Framework

http://www.who.int/gho/ihr/en/

The IHR monitoring process, involved assessing, through a self-assessment questionnaire sent to States Parties, the implementation status of 13 core capacities in the areas of zoonotic diseases, surveillance, response, coordination, laboratory, risk communication, legislation policy, and Food safety. It is available online, but it is possible to download maps and graphs. It was last updated in 2016.

2.3.1.10 Vertical health programmes

2.3.1.10.1 WHO: GHO: Maternal and reproductive health:

http://www.who.int/gho/maternal_health/en/

This is a WHO webpage that offers information about maternal health, family planning and access to skilled care. It is available online and it is possible to download maps and graphs. The last update date depends on the specific data type.

2.3.1.11 Specific national health policies

2.3.1.11.1 IHR Monitoring Framework

http://www.who.int/gho/ihr/en/

The IHR monitoring process, involved assessing, through a self-assessment questionnaire sent to States Parties, the implementation status of 13 core capacities in the areas of zoonotic diseases, surveillance, response, coordination, laboratory, risk communication, legislation policy, and Food safety. It is available online, but it is possible to download maps and graphs. It was updated on 2016.

2.3.1.12 State of health in the EU project

https://ec.europa.eu/health/state/country_profiles_en

This is a report from the European Commission, which talks about the health systems and health of the population of each European Union member state. It is available in pdf format and it was updated in 2017.

2.3.1.13 Health data organization and flow, notification system

This information has been very difficult to find. It will probably require ad-hoc research in the local ministry of health or in local NGOs or WHO sites when an outbreak occurs.

2.3.1.14 Infectious disease surveillance capacities:

2.3.1.14.1 IHR Monitoring Framework

http://www.who.int/gho/ihr/en/

The IHR monitoring process, involved assessing, through a self-assessment questionnaire sent to States Parties, the implementation status of 13 core capacities in the areas of zoonotic diseases, surveillance, response, coordination, laboratory, risk communication, legislation policy, and Food safety. It is available online, but it is possible to download maps and graphs. It was updated on 2016.
2.3.1.15 **Event based surveillance capacities**

This information has been very difficult to find. It will probably require ad-hoc research in the local ministry of health or in local NGOs or WHO sites when an outbreak occurs.

2.3.1.16 **Response measures in place**

This information has been very difficult to find. It will probably require ad-hoc research in the local ministry of health or in local NGOs or WHO sites when an outbreak occurs.

2.3.1.17 **Assistance to specific target group (e.g. IDPs, victims of violence)**

This information has been very difficult to find. It will probably require ad-hoc research in the local ministry of health or in local NGOs or WHO sites when an outbreak occurs.

2.3.1.18 **Other health actors**

This information has been very difficult to find. It will probably require ad-hoc research in the local ministry of health or in local NGOs or WHO sites when an outbreak occurs.

2.3.1.19 **Welfare system and social safety net**

This information has been very difficult to find. It will probably require ad-hoc research in the local ministry of health or in local NGOs or WHO sites when an outbreak occurs.

2.3.2 **Animal Health Sector**

Information collected on animal health for RRA purposes should primarily cover details on the generic animal health profile and focus on the epidemiology of zoonoses of particular risk for humans; it should include data on endemic diseases and historical summaries of recently occurred outbreaks.

2.3.2.1.1 **OIE: World Organization Animal Health**

[http://www.oie.int/](http://www.oie.int/)

This is the website of World Organization of Animal health, and it offers information about animal diseases, antibiotic resistance, food safety and biological risks. It is available online and the information is updated daily.

2.3.2.1.2 **Animal Disease Notification System**

[https://ec.europa.eu/food/animals/animal-diseases/not-system_en](https://ec.europa.eu/food/animals/animal-diseases/not-system_en)

This is a European Commission notification system designed to register and document the evolution of the situation of important infectious animal diseases. It provides data only for EU member states. The information is available online and it is updated daily.

2.3.3 **Medical Entomology**

2.3.3.1 **Sources**

Medical entomology deals with the study of arthropods of medical importance, meaning insects and other invertebrates able to cause diseases in humans, either directly, or as vectors of pathogens. The importance of medical entomology in terms of acute public health events is related to the role of some vectors, such as mosquitoes, ticks and flies in the transmission of specific infectious diseases.

For the purpose of a RRA, the most important information to collect in terms of medical entomology is the local presence (population, density) of vector species able to transmit VBDs to humans. Entomological surveillance activities consist in the systematic monitoring of such data and can help to predict outbreaks, understand the risk of
propagation of VBDs within a population, and to evaluate the impact of vector control measures implemented.

2.3.3.1 ECDC: Surveillance and disease data for disease vectors
It is an ECDC section that studies disease vectors, but only for the EU member states. The information is available online but it is possible to download folders. It is updated daily.

2.3.3.2 WHO: International Travel and Health
http://www.who.int/ith/en/
This is a WHO publication about the principal infectious diseases around the world: transmission, epidemiology, distribution etc. Information about vector borne diseases and their world distribution can also be found. The whole publication was updated in 2012. But a few sections have been updated more recently. Downloaded data in pdf is available, and it is quantitative and qualitative information.

2.3.3.3 CDC: Division of vector-borne disease
https://www.cdc.gov/ncezid/dvbd/about.htm
This is a section of the CDC website that studies disease vectors, but it is USA oriented. The information is available online but it is possible to download folders. It is updated daily.

2.3.4 Geophysical Profile
The geophysical description of a context of occurrence of an acute public health event may not seem particularly relevant in terms of RRA. However, in some situations, basic information about geographical, geological and other related aspects may be useful, particularly at local level. It would be important to know about available water sources and related safe water access in case of a severe water-borne disease, such as cholera, in a rural context. It may also help to gather information more related to the population habits that may have an impact on the spread of a disease, for example housing characteristics.

A description of the physical context could include details on several key aspects including the following.

2.3.4.1 Territorial characteristics and land use:
Map: A good source for this data would be a map that allows assessing the geophysical profile of the country or area with a simple glance.

2.3.4.1.1 CIA World Factbook: Guide to the country comparison
This is a CIA publication. It provides information about the economy, geography, communications, transportation, and others issues for 267 world entities. It is online but it is also possible to download folders. It is updated each year.

2.3.4.1.2 World Bank open data
https://data.worldbank.org/
The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but it is also possible to download data in excel. It is quantitative information, last updated in 2017.
2.3.4.2 Water sources:

2.3.4.2.1 CIA World Factbook: Guide to the country comparison


This is a CIA publication. It provides information about the economy, geography, communications, transportation, and others issues for 267 world entities. It is online but it is also possible to download folders. It is updated each year.

2.3.4.2.2 World Bank open data

https://data.worldbank.org/

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, last updated in 2017.

2.3.4.3 Quality of air and environmental issues

2.3.4.3.1 World Bank database

https://datacatalog.worldbank.org/dataset/country-profiles

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, last updated in 2017.

2.3.4.3.2 WHO

http://apps.who.int/gho/data/view.main.AMBIENTCITY2016?lang=en

This is a WHO webpage that allows the user to visualise and download information on air particle concentration per country in different years (PM 2.5 and PM 10). It is also available in excel format. The last update was in 2014 for almost all of the data, but it nevertheless depends on the country.

2.3.4.3.3 Air pollution in World (World Air Quality Index project)

http://aqicn.org/here/

This is the website of The World Air Quality Index. It is a social enterprise project whose mission is to promote Air Pollution awareness and provide unified air quality information for the whole world. The project is providing transparent Air Quality information for more than 70 countries, covering more than 9000 stations in 600 major cities. The information is available online and is updated daily.

2.3.4.3.4 European Environmental Agency

http://www.eea.europa.eu/themes/air/air-quality-index/index

This is the website of the European Environmental Agency. It displays up-to-the-minute data for the whole of Europe; users can gain new insights into the air quality of individual countries, regions and cities. The information is only about EU member states. It is available online and updated daily.

2.3.4.4 Natural risks

2.3.4.4.1 Inform

http://www.inform-index.org/INFORM-2017-Results-and-data

INFORM is a global project that offers open-source risk assessment information for humanitarian crises and disasters. It uses different quantitative indicators to calculate the
risk of each country to suffer different hazards. It is available online or on Excel format. The information was updated in 2018.

2.3.4.4.2 Global disaster alerts and coordination system (GDACS)

http://www.gdacs.org/default.aspx

GDACS is a cooperation framework between the United Nations, the European Commission and disaster managers worldwide to improve alerts, information exchange and coordination in the first phase after major sudden-onset disasters. Data is available online and can be downloaded in pdf format. It is updated daily.

2.3.4.4.3 CIA World Factbook: Guide to the country comparison


This is a CIA publication. It provides information about the economy, geography, communications, transportation, and others issues for 267 world entities. It is online but it is also possible to download folders. It is updated each year.

2.3.4.4.4 Thinkhazards

http://thinkhazard.org/en/

This is a website that offers qualitative information about the risk of different disasters in a subnational area. It is supported by the global facility for disaster reduction and recovery. The information is available online and it is updated daily.

2.3.5 Climate Information

Climate meteorological information refers to all data describing a geographical region in terms of weather-related aspects and includes data on climatic seasonal variability, temperature and precipitation profile, risk of drought and other weather-related emergencies such as storm and flooding.

Climate factors indirectly affect some of the most important determinants of health such as air, water, food, and shelter, thereby influencing the occurrence and spread of infectious diseases.

2.3.5.1.1 World Meteorological Organisation (Country profile database)

https://www.wmo.int/cpdb/

It is a portal where you can access the world meteorological information about WMO member states. It focuses on climate information. Information is available online. It is updated daily.

2.3.6 Infrastructure

"Infrastructure“ is a generic term used to describe the fundamental physical facilities and systems serving a defined area and providing commodities essential to allow societal living conditions, including a functioning economy. It is typically used to describe transportation structures as roads, bridges, tunnels and inland waterways but may refer to any other technical installation such as water supply, sewers, electrical grids and telecommunication services.

2.3.6.1.1 World Bank open data

https://data.worldbank.org/

The website of the World Bank offers a list of indicators about population and its distribution. The information is available online, but also it is possible to download data in excel. It is quantitative information, last updated in 2017.
2.3.6.1.2 Inform

http://www.inform-index.org/INFORM-2017-Results-and-data

INFORM is a global project that offers open-source risk assessment information for humanitarian crises and disasters. It uses different quantitative indicators to calculate the risk of each country to suffer different hazards. It is available online or on Excel format. The information was updated in 2018.

2.3.6.1.3 WHO-UNICEF JMP

https://washdata.org/data

This is the website of the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) that reports country, regional and global estimates of progress on drinking water, sanitation and hygiene (WASH) since 1990. The information is available online and also in Excel format and it was updated in 2015.

2.3.6.1.4 The Malaria Atlas Project

https://map.ox.ac.uk/accessibility_to_cities_news/

This project characterizes travel time from one point in the world to the nearest city. It is a University of Oxford project in collaboration with researchers at Google, the Joint Research Centre of the European Union, and the University of Twente (Netherlands). It was last updated in 2015.

2.3.7 Economy

The economic profile of a defined region can form part of the definition of a community profile. If a population is exposed to an acute public health event, the level of the economy may influence the characterization of the overall risk.

2.3.7.1.1 World Bank open data

https://data.worldbank.org/

The website of the World Bank offers a list of indicators on population and its distribution. The information is available online, but it is also possible to download data in Excel format. It is quantitative information, last updated in 2017.

2.3.7.1.2 EUROSTAT

http://ec.europa.eu/eurostat/data/database

This is the website of statistics and data from the European Commission and provides data only from EU member states. The information is also available in Excel format.

2.3.7.1.3 Inform

http://www.inform-index.org/INFORM-2017-Results-and-data

INFORM is a global project that offers open-source risk assessment information for humanitarian crises and disasters. It uses different quantitative indicators to calculate the risk of each country to suffer different hazards. It is available online or on Excel format. The information was updated on 2018.

2.3.8 Socio-political information and others.

When assessing the risk associated with an acute public health event, the socio-political stability of the region is a key concern: if the internal stability and security of a country is compromised, so is its ability to respond in an effective and timely manner. For this reason a regular collection of information on security, government effectiveness and the legal system of a country may be helpful in the final definition of a RRA.
2.3.8.1.1 CIA World Factbook: Guide to the country comparison


This is a CIA publication. It provides information about the economy, geography, communications, transportation, and others issues for 267 world entities. It is online but it is also possible to download folders. It is updated each year.

2.3.8.1.2 International Crisis Group

https://www.crisisgroup.org/crisiswatch

ICG is an independent organisation working to prevent wars and shape policies that will build a more peaceful world. It shares reports and data on conflicts over the world. The information is available online and updated daily.

2.3.8.1.3 Relief web

https://reliefweb.int/

Relief web is an online source for reliable and timely humanitarian information on global crises and disasters. We can find reports about the current outbreaks and disasters over the world: Maps, report and infographics. The information is available online but can also be downloaded in pdf reports and maps. It is qualitative and quantitative information. The website is updated daily, but each report depends on the specific outbreak.

2.3.8.1.4 Global peace index

http://visionofhumanity.org/indexes/global-peace-index/

This is a publication of the Institute of economics and peace which talks about the measurement of peace in the world. It is available in pdf format and it was last updated in 2017.

2.3.8.1.5 Conflict barometer

https://hiik.de/conflict-barometer/?lang=en

This is an annual report of the Heidelberg Institute for international conflict research that offers global information on conflicts. It is available in pdf format.
3 Table of Sources

Table 4, Source Information
<table>
<thead>
<tr>
<th>SUBCATEGORY</th>
<th>URL</th>
<th>SOURCES</th>
<th>ROUTE</th>
<th>FORMAT</th>
<th>DATE</th>
<th>RELIABILITY</th>
<th>DATA ACCESS</th>
<th>QUALITATIVE VS QUANTITATIVE (specific)</th>
<th>QUALITATIVE VS QUANTITATIVE (general)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health facilities (availability, capacity, maintenance, access...)</td>
<td><a href="https://healthsites.io">https://healthsites.io</a></td>
<td>The Global Healthsites Mapping Project</td>
<td>API/GeoJSON/KML/CSV</td>
<td>Good</td>
<td>Easy</td>
<td>Quantitative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="https://ec.europa.eu/health/state/country_profiles_en">https://ec.europa.eu/health/state/country_profiles_en</a></td>
<td>State of health in the EU project</td>
<td>OCDE: Topics: Health: Health policies and data: Country health profile</td>
<td>Pdf</td>
<td>2017</td>
<td>Very Good</td>
<td>Easy</td>
<td>Both</td>
<td>Both</td>
</tr>
<tr>
<td>Health staff (presence and capacities)</td>
<td>2017</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.who.int/gho/health_workforce/physicians_density/en/">http://www.who.int/gho/health_workforce/physicians_density/en/</a></td>
<td>Global Health Observatory of Data</td>
<td>Excel</td>
<td>Dependent on the country</td>
<td>Very Good</td>
<td>Easy</td>
<td>Quantitative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------------------------------------------</td>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>-----</td>
<td>-------</td>
<td>-----------</td>
<td>-----</td>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Vaccination program</td>
<td>Difficult, maybe at the local ministry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health prevention and promotion activities</td>
<td>Difficult, maybe at the local ministry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnosis capacities</td>
<td>WHO: Data: Global health Observatory Data: International Health Regulations Monitoring Framework</td>
<td>Onl ine, maps and graphs</td>
<td>2016</td>
<td>Very good</td>
<td>Easy</td>
<td>Both</td>
<td>Qualitative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>--------------------------</td>
<td>------</td>
<td>----------</td>
<td>------</td>
<td>------</td>
<td>------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical health programs</td>
<td>WHO: GHO: Maternal and reproductive health WHO: Data: Global health observatory data: Maternal health</td>
<td>Online, maps and graphs</td>
<td>Depends on the item</td>
<td>Very Good</td>
<td>Easy</td>
<td>Both</td>
<td>Qualitative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific national health policies</td>
<td>WHO: Data: Global health Observatory Data: International Health Regulations Monitoring Framework</td>
<td>Online, maps and graphs</td>
<td>2016</td>
<td>Very good</td>
<td>Easy</td>
<td>Both</td>
<td>Qualitative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State of health in the EU project</td>
<td>OCDE: Topics: Health: Health</td>
<td>Pdf</td>
<td>2017</td>
<td>Very Good</td>
<td>Easy</td>
<td>Qualitative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health data organization</td>
<td>Difficult, maybe at the local minister</td>
<td></td>
<td></td>
<td>Qualitative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------------------------------------</td>
<td>---</td>
<td>---</td>
<td>------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Event based surveillance capacities</td>
<td>Difficult, maybe at the local minister</td>
<td></td>
<td></td>
<td>Qualitative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response measures in place</td>
<td>Difficult, maybe at the local minister</td>
<td></td>
<td></td>
<td>Qualitative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistance to specific target group</td>
<td><a href="https://ec.europa.eu/health/state/country_profiles_en">https://ec.europa.eu/health/state/country_profiles_en</a></td>
<td>State of health in the EU project???</td>
<td>OCDE: Topics: Health: Health policies and data: Country health profile 2017</td>
<td>Pdf</td>
<td>2017</td>
<td>Very Good</td>
<td>Easy</td>
<td>Both</td>
<td>Qualitative</td>
</tr>
<tr>
<td>Other health actors</td>
<td>State of health in the EU project???</td>
<td>OCDE: Topics: Health: Health policies and data: Country health profile 2017</td>
<td>Pdf</td>
<td>2017</td>
<td>Very Good</td>
<td>Easy</td>
<td>Both</td>
<td>Qualitative</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------------</td>
<td>-------------------------------------------------</td>
<td>-----</td>
<td>------</td>
<td>----------</td>
<td>------</td>
<td>------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>Welfare system and social safety net</td>
<td>OIE: World Organization Animal Health</td>
<td>Online</td>
<td>Daily updated</td>
<td>Very good</td>
<td>Easy</td>
<td>Qualitative</td>
<td>Qualitative</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Animal Disease Notification System</td>
<td>Online</td>
<td>Daily updated</td>
<td>Very Good</td>
<td>Easy</td>
<td>Qualitative</td>
<td>Qualitative</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECDC: Surveillance and disease data for disease vectors</td>
<td>Online and downloadable folders</td>
<td>Daily updated</td>
<td>Very good</td>
<td>Easy</td>
<td>Qualitative</td>
<td>Qualitative</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WHO: International Travel and Health</td>
<td>pdf</td>
<td>Last updated January 2018</td>
<td>Very good</td>
<td>Easy</td>
<td>Qualitative</td>
<td>Qualitative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Resource Link</td>
<td>Description</td>
<td>Availability</td>
<td>Difficulty</td>
<td>Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------------------</td>
<td>------------</td>
<td>---------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Territorial characteristics and land use</td>
<td><a href="https://www.cdc.gov/ncezid/dvbd/about.html">https://www.cdc.gov/ncezid/dvbd/about.html</a></td>
<td>CDC: Division of vector-borne disease</td>
<td>Daily updated</td>
<td>Very Good</td>
<td>Easy</td>
<td>Qualitative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Map (Google earth???)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CIA: Library: The world factbook</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Qualitative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>World Bank open data</td>
<td>The world bank: What we do: Data</td>
<td>Last updated 2016</td>
<td>Very Good</td>
<td>Easy</td>
<td>Quantitative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CIA: Library: The world factbook</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Qualitative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>World Bank open data</td>
<td>The world bank: What we do: Data</td>
<td>Last updated 2016</td>
<td>Very Good</td>
<td>Easy</td>
<td>Quantitative</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Not so easy: Not so easy
Easy: Easy
Very Good: Very Good
Quantitative: Quantitative
Qualitative: Qualitative
<p>| HTML | n | foulagers | year | | |
|---|---|---|---|---|
| <a href="http://www.gdacs.org/default.aspx">http://www.gdacs.org/default.aspx</a> | Global disaster alerts and coordinatio n system (GDACS) | Online and pdf | Updated | Very Good | Easy | Qualitative |
| <a href="http://thinkhazard.org/en/">http://thinkhazard.org/en/</a> | Thinkhazards | Online | Updated | Good | Easy | Qualitative |
| <a href="https://www.wmo.int/cpdb/">https://www.wmo.int/cpdb/</a> | World Meteorological Organisatio n (Country profile database) | Online | Daily upda ted | Very Good | Easy | Quantitative |</p>
<table>
<thead>
<tr>
<th>Source</th>
<th>Provider</th>
<th>Data Description</th>
<th>Format</th>
<th>Quality</th>
<th>Difficulty</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="https://map.ox.ac.uk/accessibility_to_cities_news/">https://map.ox.ac.uk/accessibility_to_cities_news/</a></td>
<td>The Malaria Atlas Project</td>
<td>Malaria Atlas Project</td>
<td></td>
<td>2015</td>
<td>Good</td>
<td>Easy</td>
</tr>
<tr>
<td><a href="https://www.crisisgroup.org/">https://www.crisisgroup.org/</a></td>
<td>International Crisis Group/crisisWatch</td>
<td>CIA: Library: The world factbook Online and downloaded folders</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Website/Source</td>
<td>Source Type</td>
<td>Format</td>
<td>Relevance</td>
<td>Difficulty</td>
<td>Complexity</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------</td>
<td>-------------</td>
<td>--------</td>
<td>-----------</td>
<td>------------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td><a href="https://reliefweb.int/">https://reliefweb.int/</a></td>
<td>Relief web</td>
<td>Pdf</td>
<td>Very good</td>
<td>Easy</td>
<td>Qualitative</td>
<td></td>
</tr>
<tr>
<td><a href="https://hiik.de/conflict-barometer/?lang=en">https://hiik.de/conflict-barometer/?lang=en</a></td>
<td>Conflict barometer</td>
<td></td>
<td>Good</td>
<td>Easy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4 Conclusions

The types of data identified in this report are varied in many aspects, including data format, quality, degree to which the data is up to date, official status and both geographical and temporal completeness. This heterogeneity presents a significant challenge for the analyst attempting to put a particular incident into context for the purposes of risk assessment and response.

Some needs are met through accessible and complete formatted datasets with an official or quasi-official stamp. These tend to be multi-use datasets with application across a broad range of uses giving a certain economy of scale. Demographic data is a good example of this.

As data becomes more specific to the context of this document, it can become more difficult to find and be associated with the drawbacks associated with quality mentioned in the previous paragraph. In addition, certain information needs are ad-hoc and geographically specific, necessitating targeted research as part of the risk assessment process.

There are certain data needs identified in Mantero et al (1) which are more or less impossible to meet at the moment. Further work could be done to investigate ways forward for these specific types of data.
References
List of tables

Table 1, Agent and Disease Components ................................................................. 8
Table 2, Host information components ................................................................. 11
Table 3, Context data components ........................................................................ 17
Table 4, Source Information .................................................................................... 27
GETTING IN TOUCH WITH THE EU

In person
All over the European Union there are hundreds of Europe Direct information centres. You can find the address of the centre nearest you at: http://europea.eu/contact

On the phone or by email
Europe Direct is a service that answers your questions about the European Union. You can contact this service:
- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),
- at the following standard number: +32 22999696, or
- by electronic mail via: http://europa.eu/contact

FINDING INFORMATION ABOUT THE EU

Online
Information about the European Union in all the official languages of the EU is available on the Europa website at: http://europa.eu

EU publications
You can download or order free and priced EU publications from EU Bookshop at: http://bookshop.europa.eu. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see http://europa.eu/contact).
JRC Mission

As the science and knowledge service of the European Commission, the Joint Research Centre’s mission is to support EU policies with independent evidence throughout the whole policy cycle.

EU Science Hub
ec.europa.eu/jrc

@EU_ScienceHub
EU Science Hub - Joint Research Centre
Joint Research Centre
EU Science Hub