



# Toward a better inclusion and engagement of people to tackle epidemics and pandemics at European level

ASSET Final Event, Rome 30-31 October 2017

*Massimo Ciotti*

*European Centre for Disease Prevention and Control*

# Our mission

*‘ECDC’s mission is to identify, assess and communicate current and emerging threats to human health posed by infectious diseases’. (ECDC founding regulation 851/2004)*

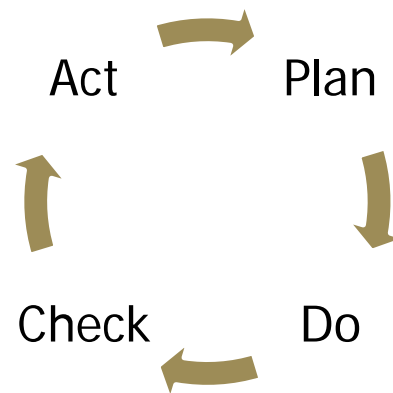
## Core functions:

- Disease surveillance
- Epidemic intelligence
- Risk assessment
- Health communication
- Scientific advice and guidance
- Response support
- Preparedness and capacity strengthening
- Training



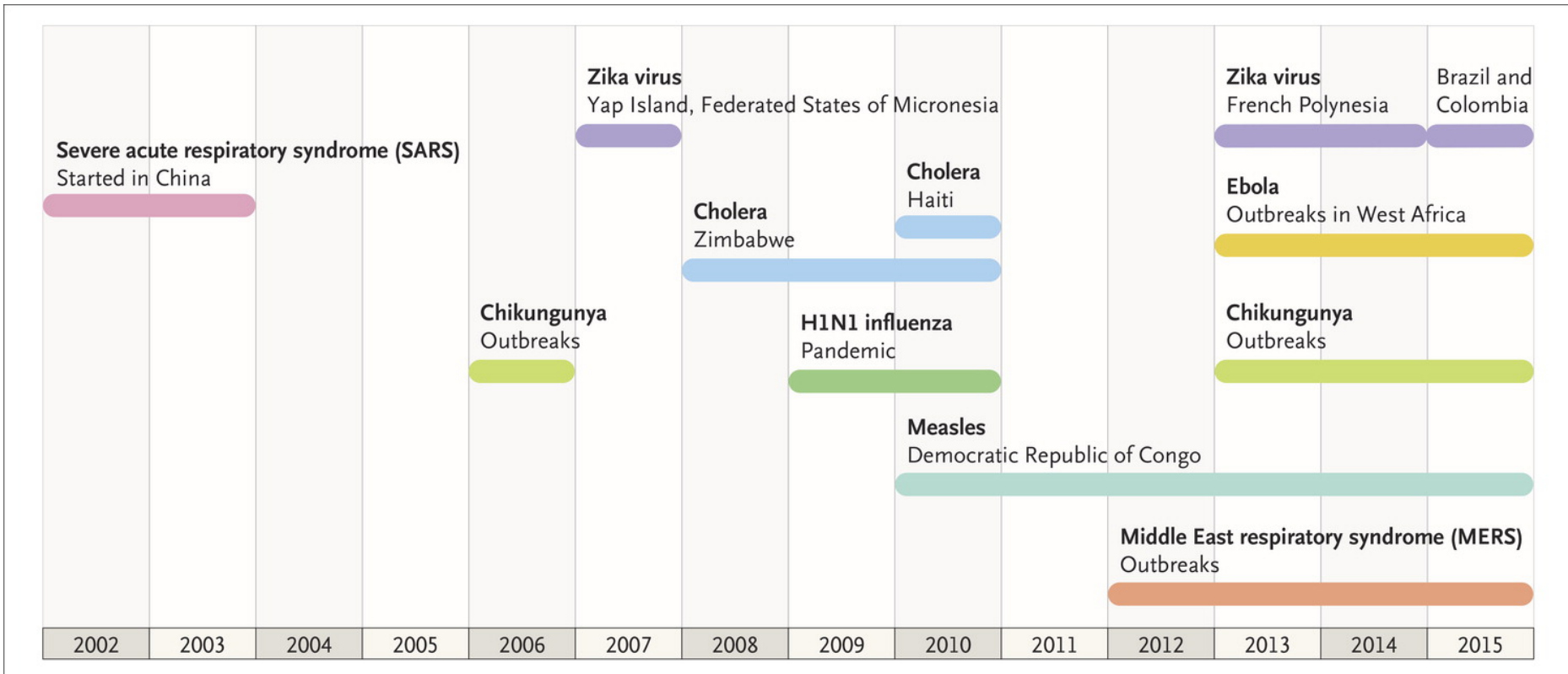
- Antimicrobial resistance and healthcare-associated infections
- Emerging and vector-borne diseases
- Food- and waterborne diseases and zoonoses
- Influenza
- Microbiology
- Tuberculosis
- HIV, sexually transmitted infections and viral hepatitis
- Vaccine-preventable diseases

# ECDC's contribution to EU capacity to manage emergencies



**PUBLIC HEALTH EMERGENCY PREPAREDNESS**

# Major Emerging and Reemerging Infectious-Disease Outbreaks, Epidemics, and Pandemics, 2002 through 2015



# What are the drivers?



## 1. Globalization and environment

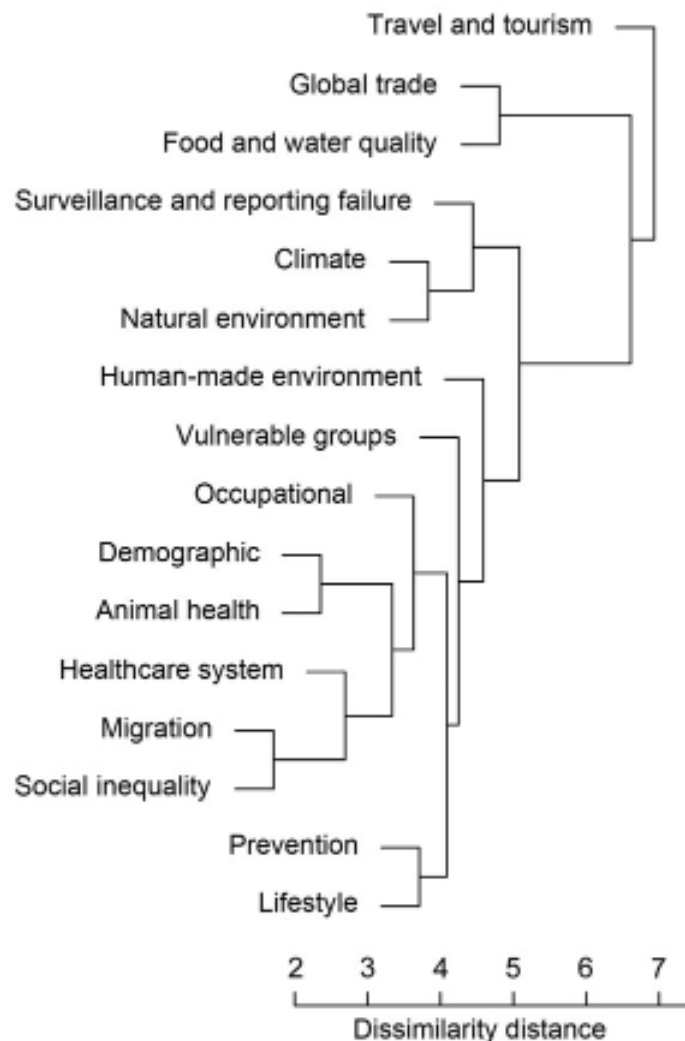
Climate, natural environment, human made environment, travel and tourism, migration and global trade.

## 2. Socio demographic

Demographic, social inequality, vulnerable groups, prevention, lifestyle, occupational, terrorism.

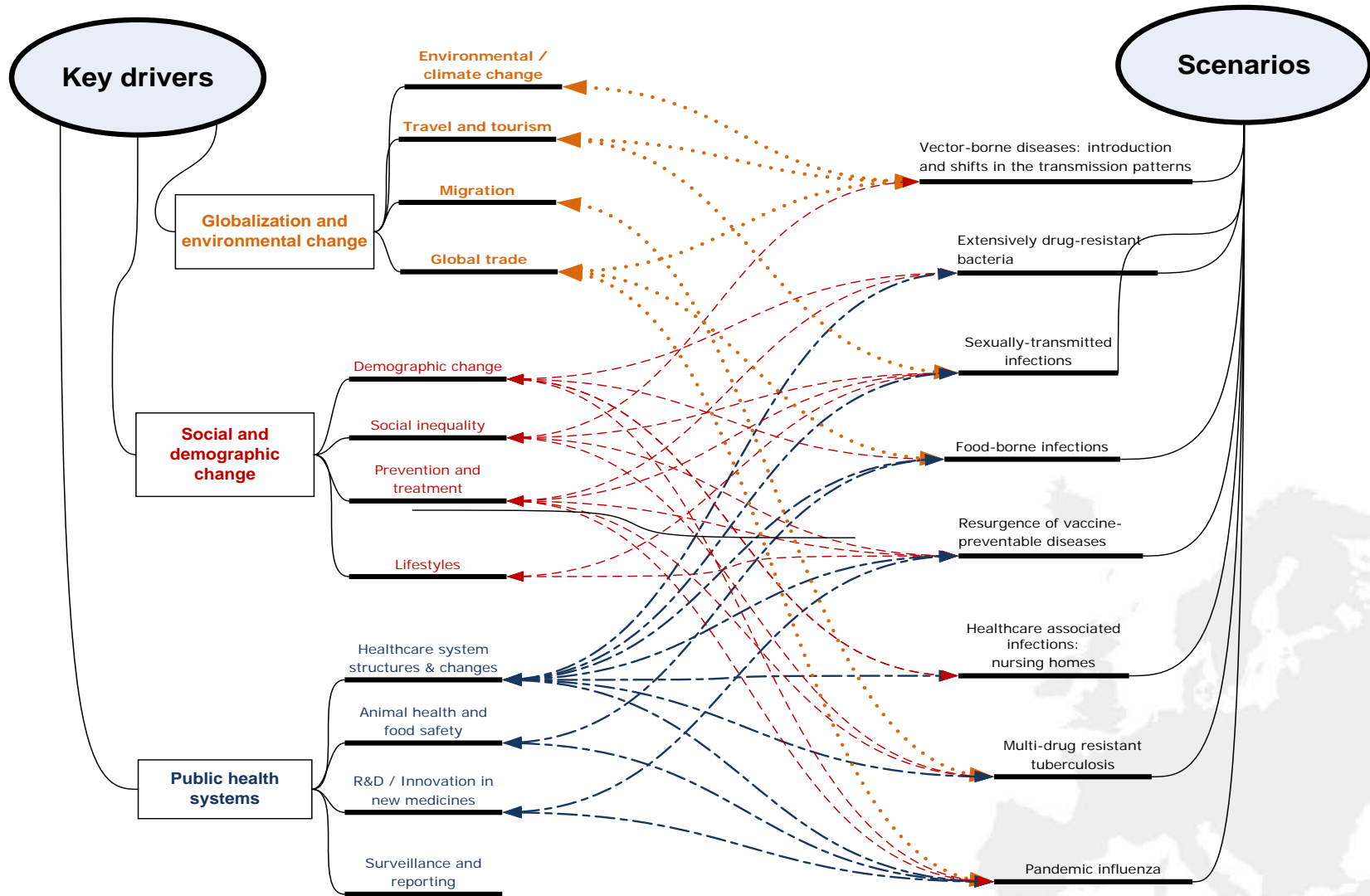
## 3. Public health systems

Healthcare system, animal health, food and water quality, surveillance and reporting failure.



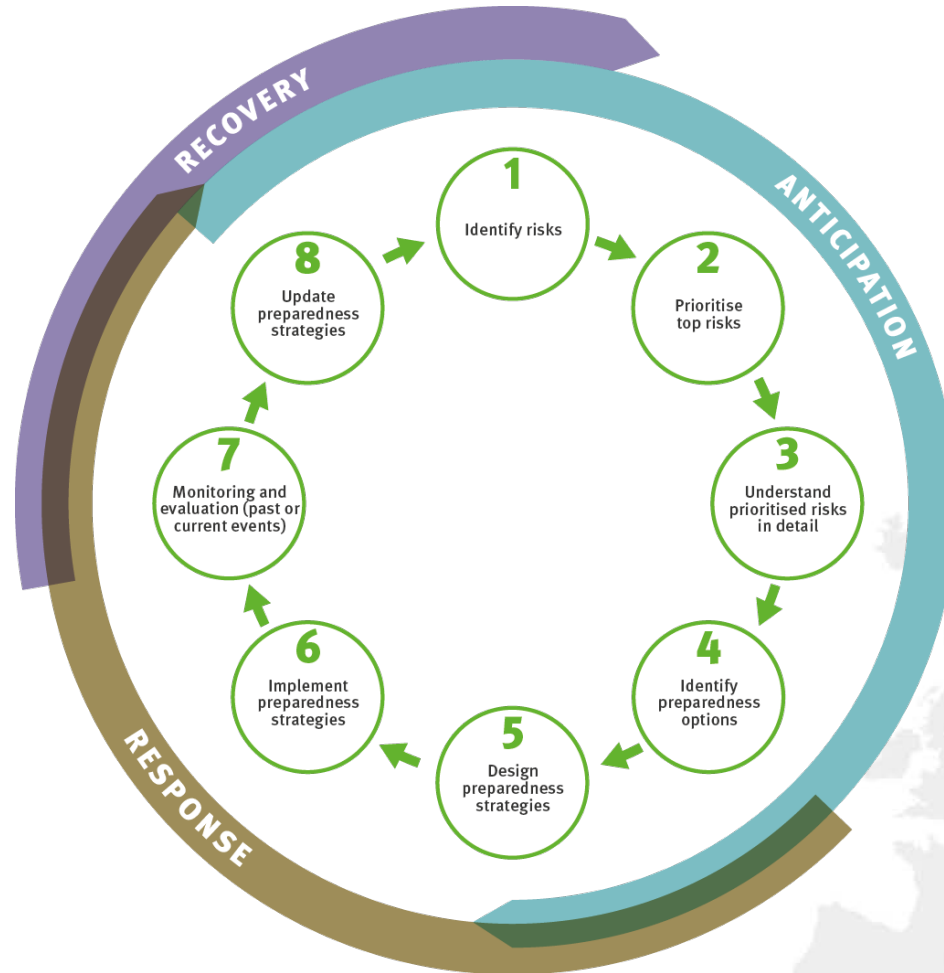
**Figure 3** Cluster dendrogram from hierarchical cluster analysis of drivers contributing to observed infectious disease threat events (IDTEs), Europe, 2008–2013. Individual drivers in the lower part of the tree are more related to each other, as indicated by distances between the branches. Drivers below travel and tourism also occurred less often as unique drivers and tended to be more contextual in nature. Scale bar indicates dissimilarity distance for drivers, as measured by frequency of pairwise co-occurrence in clusters. Similar drivers (those that occurred in outbreaks) are at a close distance, and those that were more independent of other drivers show higher dissimilarity.

# Threat scenarios for public health in the EU



# Preparedness – Response – Recovery

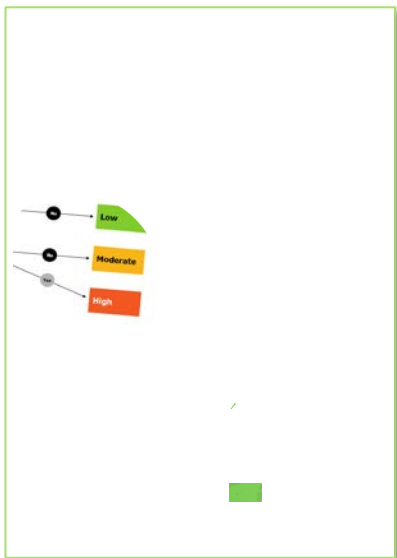
*a quality improvement cycle for PHE*



# RISK ASSESSMENT AND PLANNING







Low  
Moderate  
High

**DRAFT**

ECDC TECHNICAL DOCUMENT  
Handbook on Strategic Planning for Public Health Emergency Preparedness



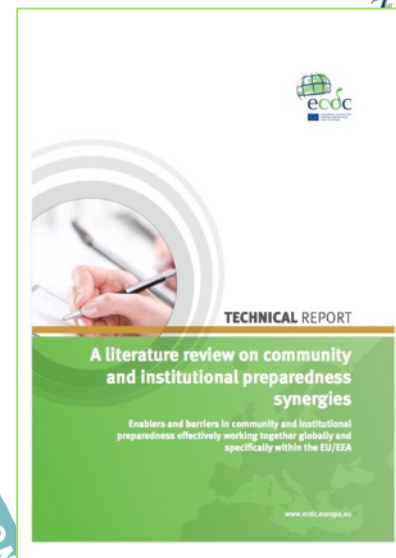
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DISEASE PREVENTION  
AND CONTROL

**TECHNICAL REPORT**

Best practices in ranking emerging infectious disease threats

A literature review

www.ecdc.europa.eu



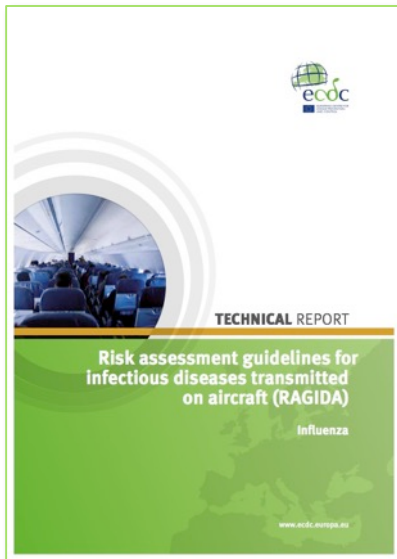
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DISEASE PREVENTION  
AND CONTROL

**TECHNICAL REPORT**

A literature review on community and institutional preparedness synergies

Enablers and barriers in community and institutional preparedness effectively working together globally and specifically within the EU/EEA

www.ecdc.europa.eu



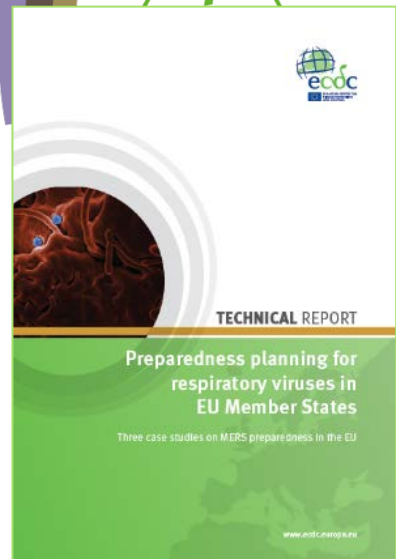
ecdc  
EUROPEAN CENTRE FOR  
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AND CONTROL

**TECHNICAL REPORT**

Risk assessment guidelines for infectious diseases transmitted on aircraft (RAGIDA)

Influenza

www.ecdc.europa.eu



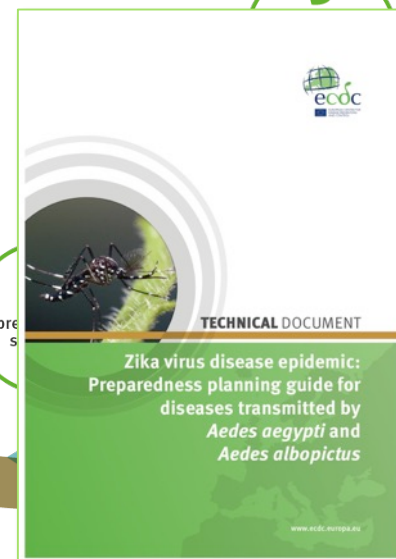
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AND CONTROL

**TECHNICAL REPORT**

Preparedness planning for respiratory viruses in EU Member States

Three case studies on MERS preparedness in the EU

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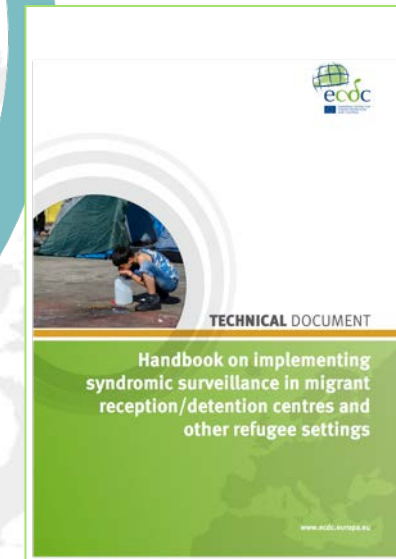


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EUROPEAN CENTRE FOR  
DISEASE PREVENTION  
AND CONTROL

**TECHNICAL DOCUMENT**

Zika virus disease epidemic: Preparedness planning guide for diseases transmitted by *Aedes aegypti* and *Aedes albopictus*

www.ecdc.europa.eu

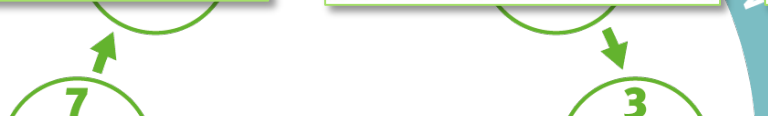


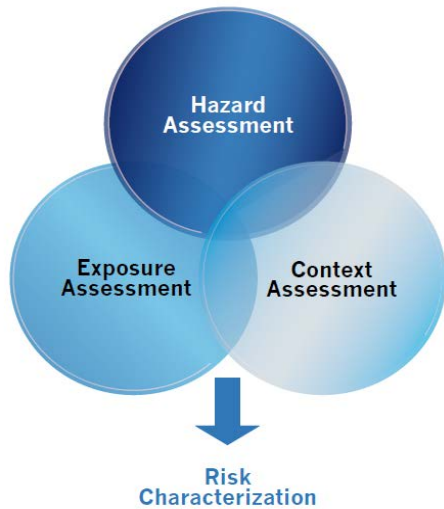
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**TECHNICAL DOCUMENT**

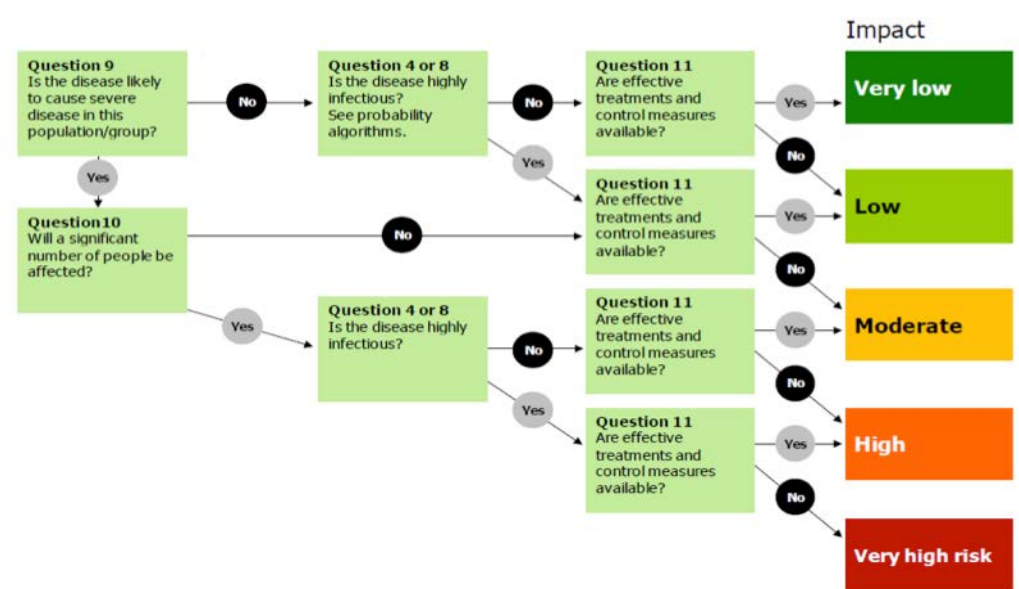
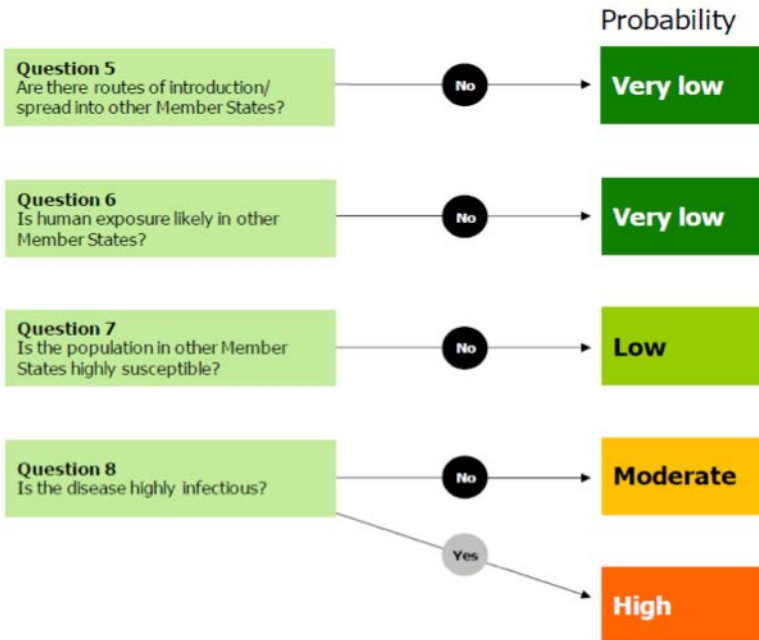
Handbook on implementing syndromic surveillance in migrant reception/detention centres and other refugee settings

www.ecdc.europa.eu











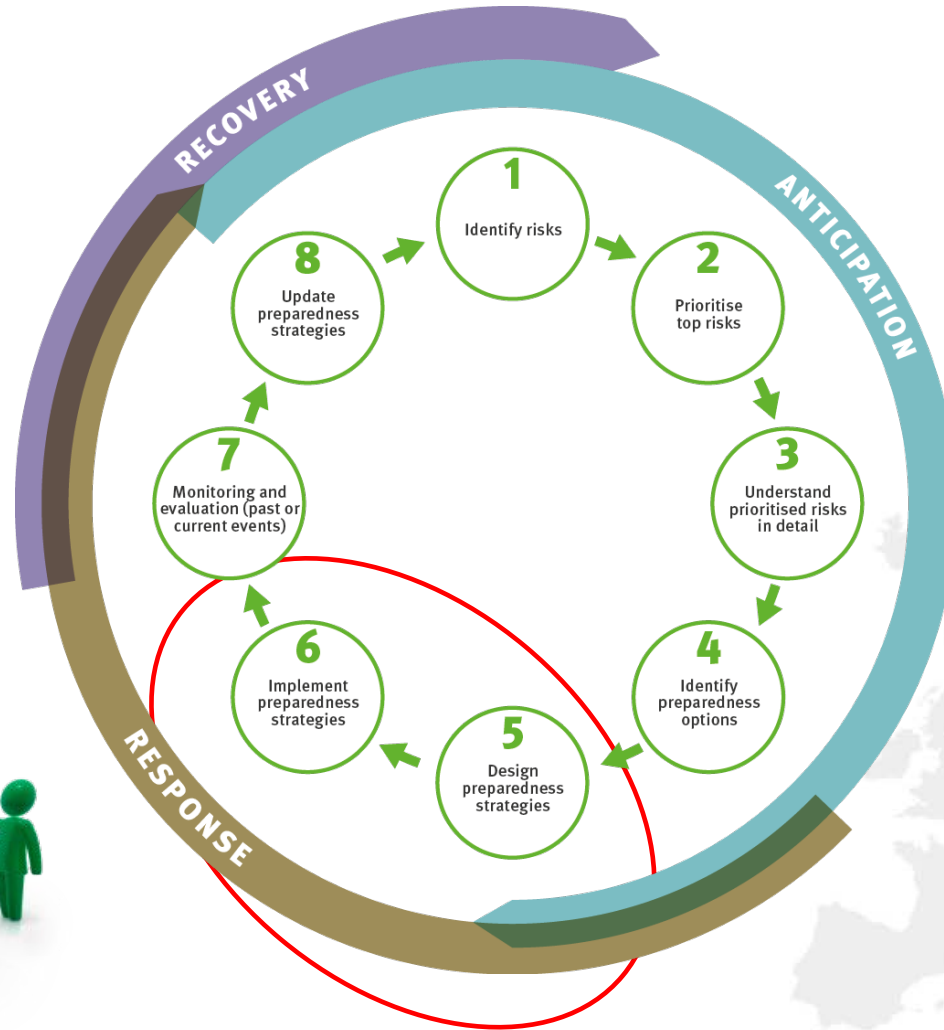
Probability \ Impact	Very low	Low	Moderate	High
Very low	Very low risk	Low risk	Low risk	Moderate risk
Low	Low risk	Low risk	Moderate risk	Moderate risk
Moderate	Low risk	Moderate risk	Moderate risk	High risk
High	Moderate risk	Moderate risk	High risk	High risk
Very high	Moderate risk	High risk	High risk	Very high risk



# Ranking criteria

Pictogram	Criterion description	Range
	<p><b>Probability of introduction of the pathogen into a Member State in the next 5 years</b> This criterion defines the probability that a pathogen enters a Member State. When a pathogen is already present or likely to be introduced in the next year, this is represented by the highest category (&gt;99%). If the introduction is likely to occur less than once in the next 100 years, than this is represented by the lowest category (&lt;1%). Similar interpretations can be given to the remaining two categories.</p>	<p>&lt;1% 1 – 10% 10 – 99% &gt;99%</p>
	<p><b>Total incidence in the population of the Member State in the next 5 years</b> This criterion reflects the total incidence of infection among the population per 100,000 inhabitants in the next 5 years. This number will depend on the proportion of the population that is at risk for infection, the possible pathogen reservoirs, the exposure to the pathogen through the possible transmission routes and the infectivity of the pathogen. The criterion ranges from less than 1 infection per 100,000 to over 1,000 per 100,000.</p>	<p>&lt;1 1 – 100 100 – 1000 &gt;1,000</p>
	<p><b>Percentage of cases that died from infection</b> This criterion represents the proportion of cases that died from the disease under consideration. It is the proportion of all cases that is expected to be fatal. This proportion depends on the pathogen causing the disease under consideration and the health state of the patients. The criterion ranges from less than 0.1% probability of dying from the disease to &gt;10% of cases dying from infection</p>	<p>&lt;0.1% 0.1 – 1% 1 – 10% 10 – 100%</p>
	<p><b>Probability that the threat increases in the next 5 years</b> Changes to the pathogen or its environment may lead to a worse threat than it is at present. Such worsening can occur through various mechanisms, including the evolution of new pathogen traits (e.g. virulence, enhanced transmissibility in humans, antimicrobial resistance), changing vector habitats (i.e. due to climate change), changes in animal reservoirs, changes in global trade and travel or changes in public health capacity.</p>	<p>&lt;1% 1 – 10% 10 – 99% &gt;99%</p>
	<p><b>Discomfort of a disease episode at personal level</b> The impact of a disease on the individual is partly determined by the associated discomfort. This discomfort can range for instance from mild diarrhea for a day to irreversible blindness or kidney failure. A measure to express this discomfort due to disease is the time (in years) lived with disease-associated disabilities (YLD). The criterion ranges from very mild (&lt;1 per 100 YLD) cases to very severe (&gt;100 YLD per 100 cases).</p>	<p>&lt;1 YLD 1 – 10 YLD 10 – 100 YLD &gt;100 YLD</p>
	<p><b>Economic impact of the disease</b> This criterion indicates the impact in monetary terms of an infectious disease threat in 5 years' time, including direct costs to the healthcare system, and to preparedness and response, and indirect costs related to productivity losses, tourism losses, trade losses. The costs are expressed as total costs, averaged over 100 cases.</p>	<p>&lt;1 M€ 1 – 10 M€ 10 – 100 M€ &gt;100 M€</p>

# Training and Exercising





**TECHNICAL DOCUMENT**

Social media strategy development



**TECHNICAL DOCUMENT**

Handbook on simulation exercises in EU public health settings

www.ecdc.europa.eu



**TECHNICAL DOCUMENT**

Core competencies for infection control and hospital hygiene professionals in the European Union

www.ecdc.europa.eu



**TECHNICAL DOCUMENT**

Safe use of personal protective equipment in the treatment of infectious diseases of high consequence

A tutorial for trainers in healthcare settings

Version 2, 2 December 2014

www.ecdc.europa.eu



**TECHNICAL DOCUMENT**

Use of personal protective equipment for safe first assessment of Persons Under Investigation of Ebola virus disease in the EU/EEA

A tutorial for healthcare professionals

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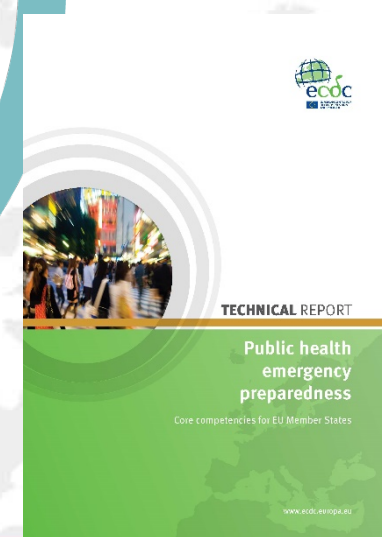


**Workshop Report**

How Can We Be Better Prepared for the Next Global Health Threat?

Planning and Implementing Emergency Risk Communication

7-8 SEPTEMBER 2014 | STOCKHOLM, SWEDEN



**TECHNICAL REPORT**

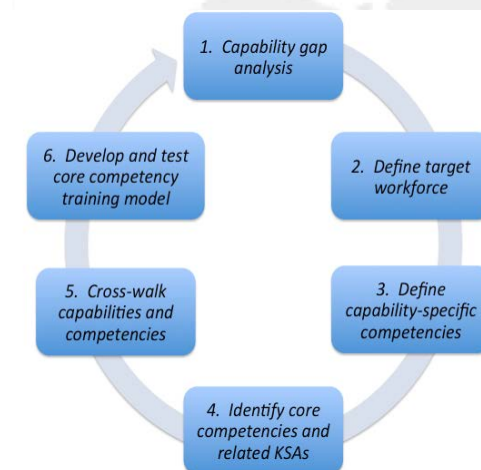
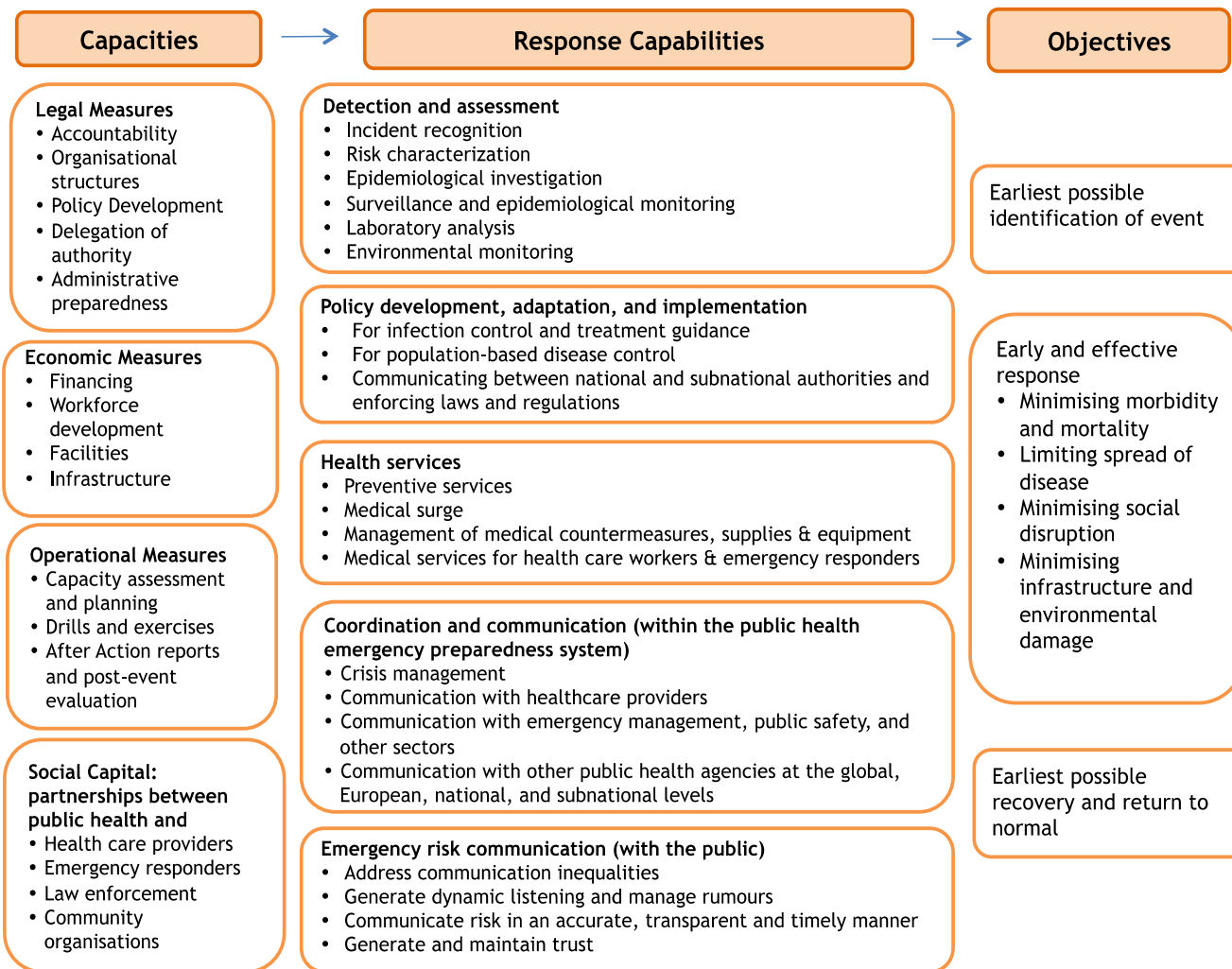
Public health emergency preparedness

Core competencies for EU Member States

www.ecdc.europa.eu



# ECDC Logic Model for PHEP



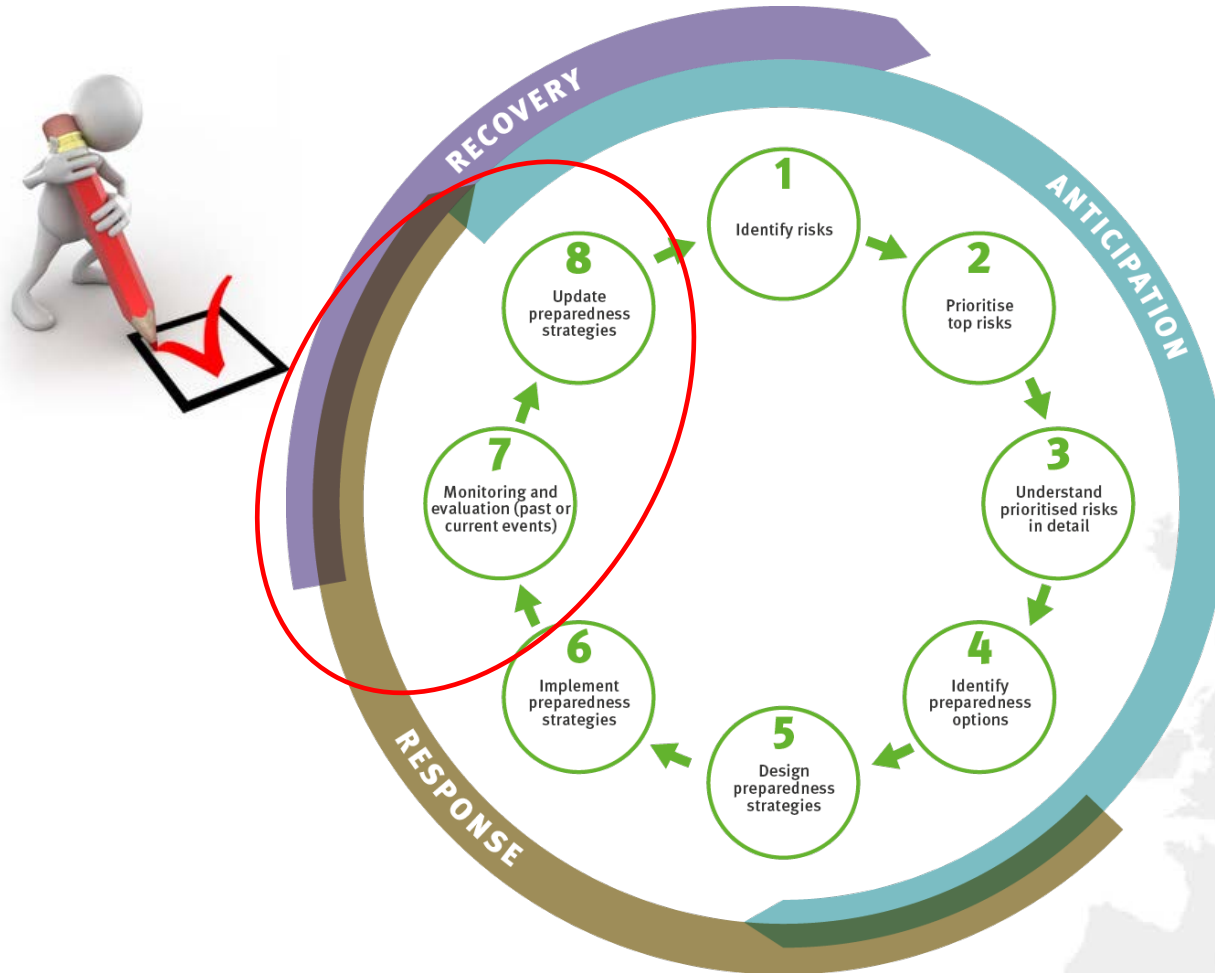
# Competency-based education and training

**Competencies** are combinations of knowledge and skills that are required to perform a task effectively.

1. all learning outcomes—the required competencies—are precisely defined, so as to be **measurable**.
2. the aim of competency-based education is **preparation for specific jobs** or professional roles, from which the competencies are derived.
3. trainings are typically implemented in a **modular format** based on level of difficulty and/or specificity.



# Evaluation



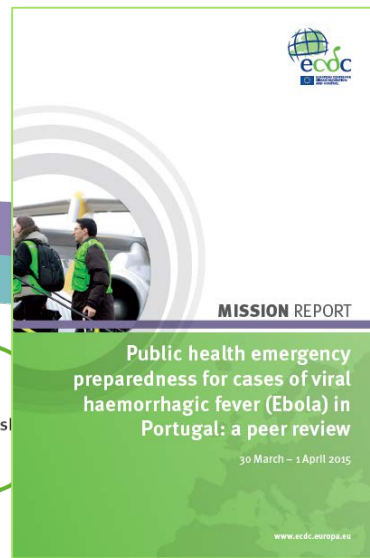


DRAFT

Health Emergency Preparedness Self Assessment Tool

DRAFT

ECDC Technical Document:  
Conducting critical incident reviews to enhance preparedness planning



MISSION REPORT

Public health emergency preparedness for cases of viral haemorrhagic fever (Ebola) in Portugal: a peer review

30 March – 1 April 2015

www.ecdc.europa.eu



TECHNICAL DOCUMENT

Climate change and communicable diseases in the EU Member States

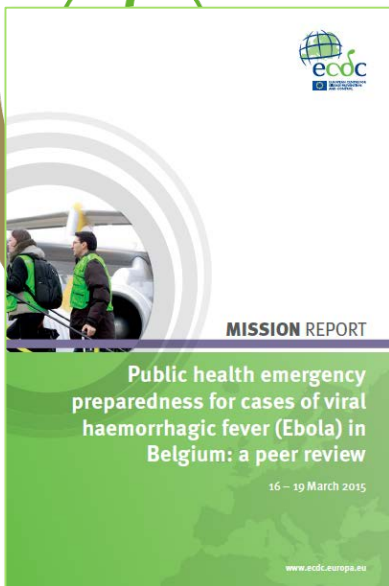


MISSION REPORT

Ebola preparedness peer review mission, Romania

19–21 March 2015

www.ecdc.europa.eu

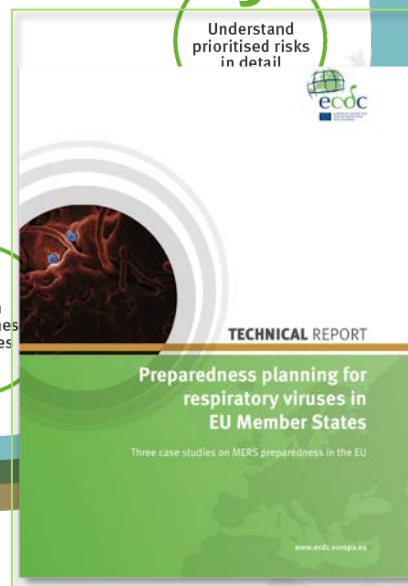


MISSION REPORT

Public health emergency preparedness for cases of viral haemorrhagic fever (Ebola) in Belgium: a peer review

16–19 March 2015

www.ecdc.europa.eu

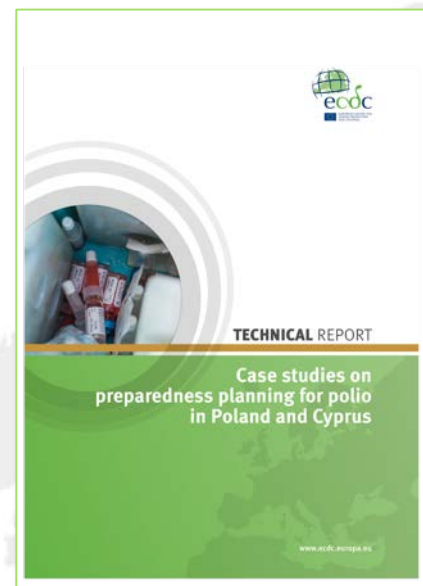


TECHNICAL REPORT

Preparedness planning for respiratory viruses in EU Member States

Three case studies on MERS preparedness in the EU

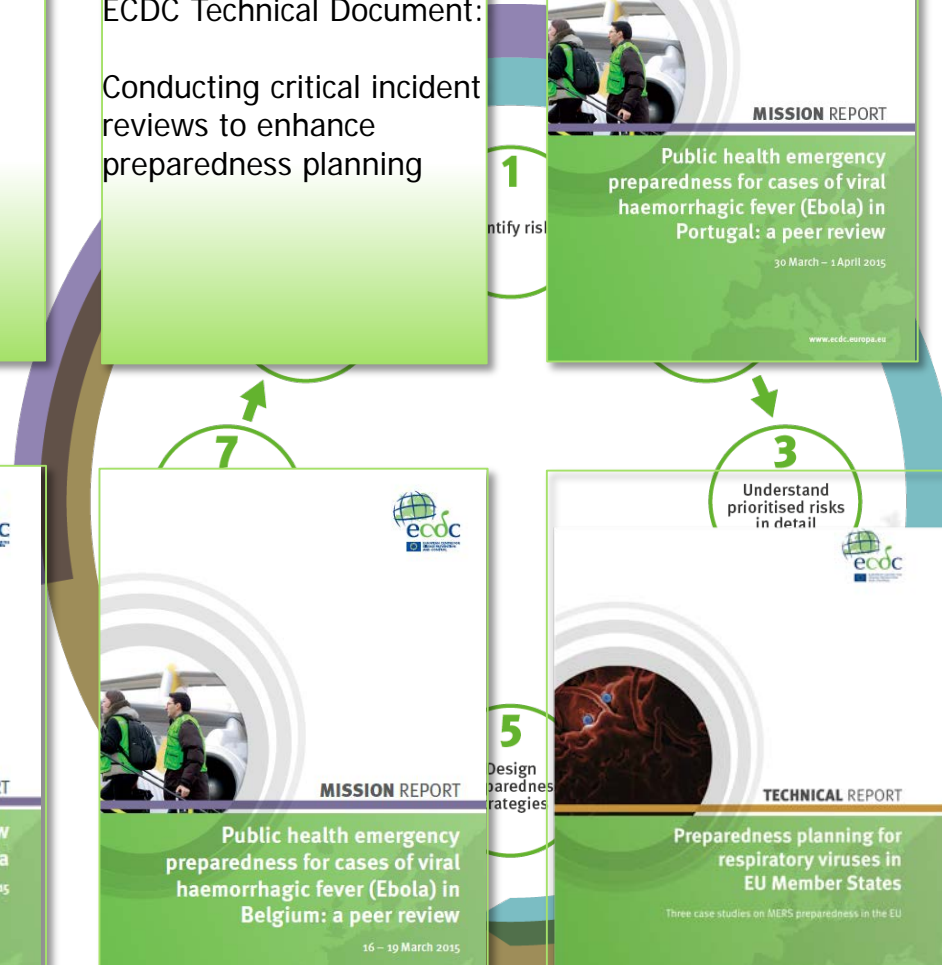
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TECHNICAL REPORT

Case studies on preparedness planning for polio in Poland and Cyprus

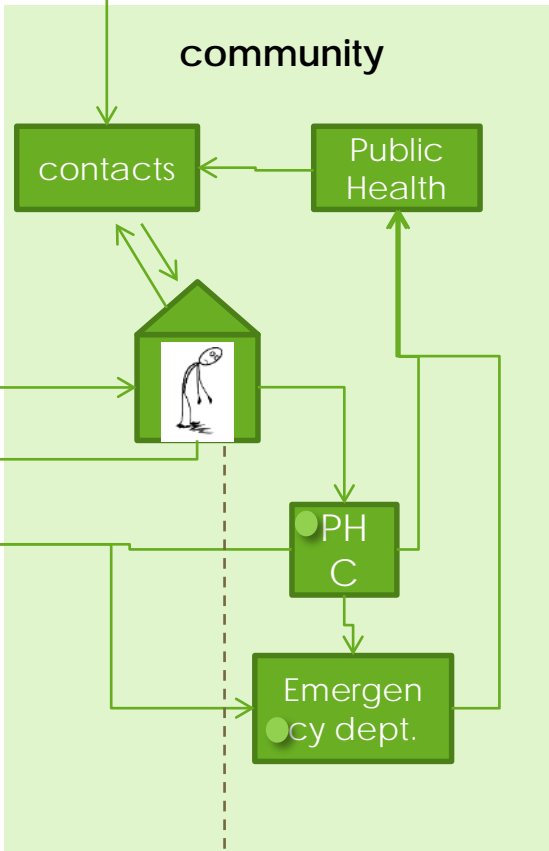
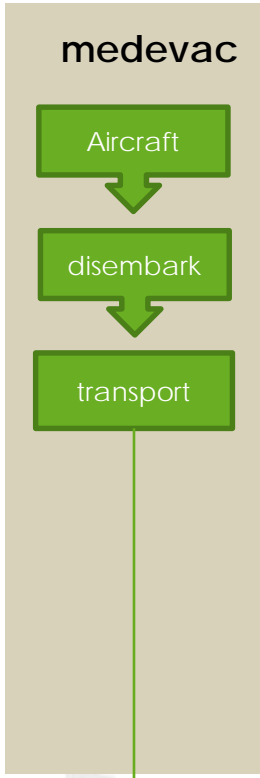
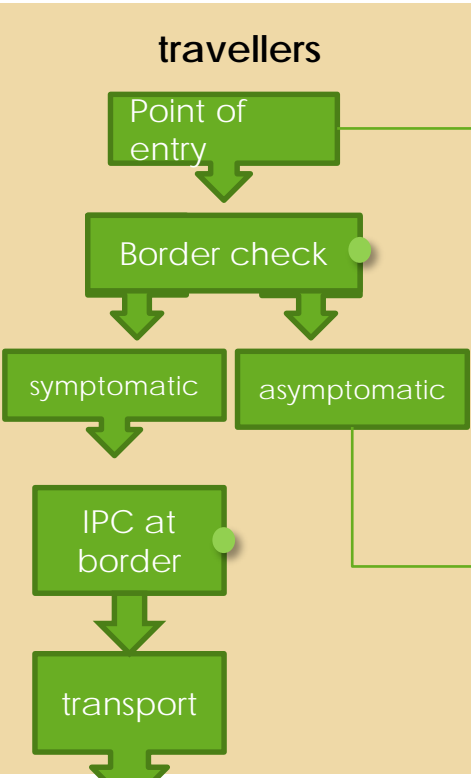
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# VHF pathways and potential responders: conceptual scheme

- ### Cross-cutting
- Surveillance
  - Case finding
  - IPC
  - Laboratory
  - Info, comms
  - HR, training
  - coordination



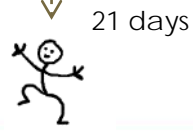
**Designated treatment hospital**

**Critical abilities**

- Isolation
- PPE
- Samples
- Waste
- Post-mortem
- .....

- ### Five modules
- A – Primary responders
  - B – Point of entry
  - C – Medevac
  - D – In country transport
  - E – Designated hospital

- ### For each organisation
- Suspect case recognition
  - Patient management & staff protection
  - Plans & preparation

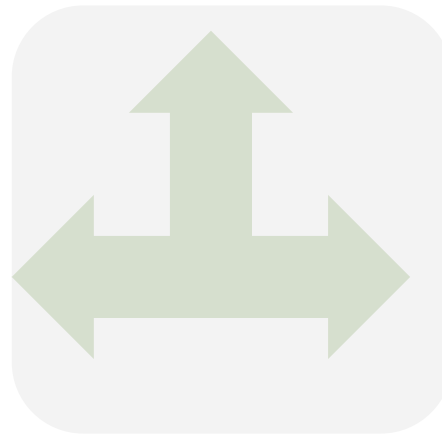
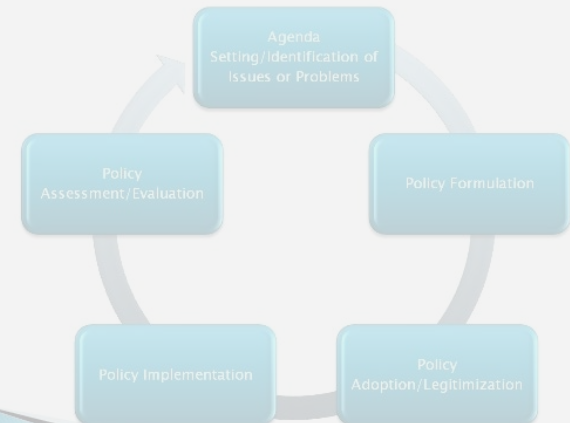


● Possible point of recognition as suspect case

# Integrating communities into the preparedness cycle



## Stages of Policy Process



# Institutional vs community preparedness

*“the ability of communities to prepare for, withstand, and recover — in both the short and long terms — from public health incidents”* (Nelson et al. 2007)



(a)

# Background

The UN's Sendai Framework for Disaster Risk Reduction in 2015, recommends **broader community engagement** in the international and community emergency preparedness.

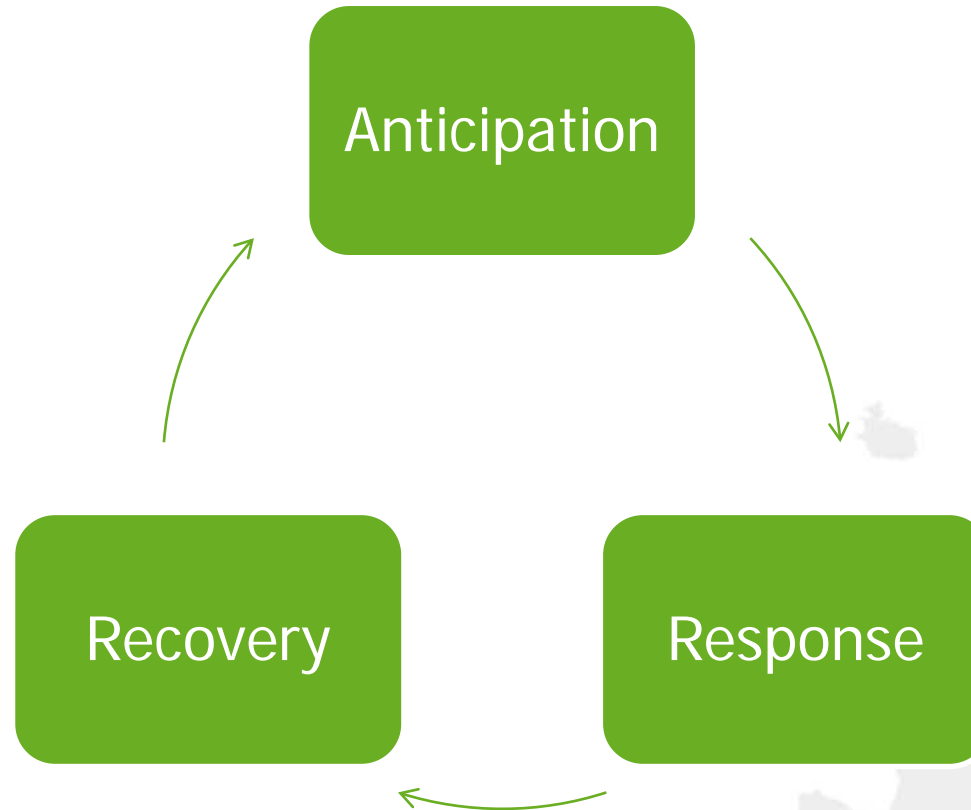


Sendai Framework for Disaster Risk Reduction

2015 - 2030

# Background

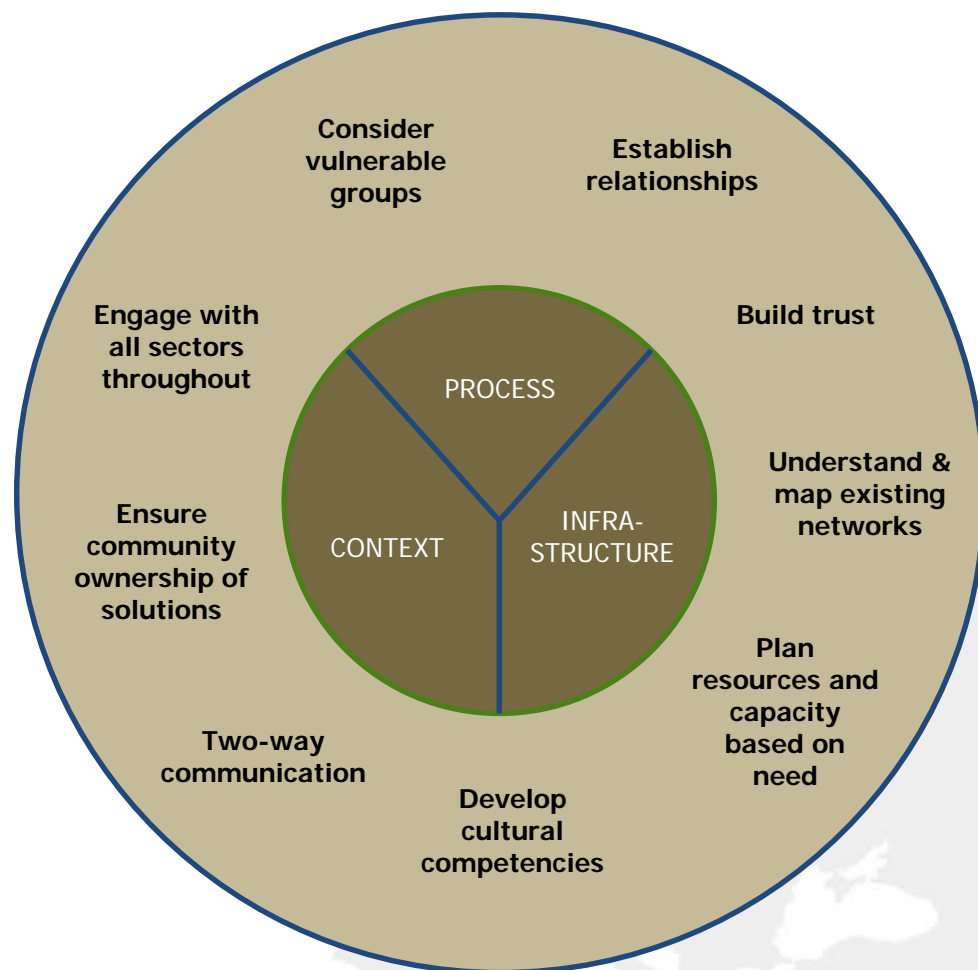
The **emergency preparedness cycle** consists of three main stages:



**Resilient communities** have a role to play in each stage.

# Institutional vs community preparedness

- public health emergency preparedness (PHEP) includes **public engagement** (educating, engaging, and mobilizing local social networks within the public domain to be full and active participants)
- Improving the **cooperation between public health institutions and civil society** in preparing for public health threats
  - Phase I: **Theoretical contextualization** of community and Institutional preparedness in Europe and globally
  - Phase II: **Empirical data gathering** through country case studies
  - Phase III: **Developing guidance** on how to integrate (more) effectively community preparedness into the PHEP cycle.

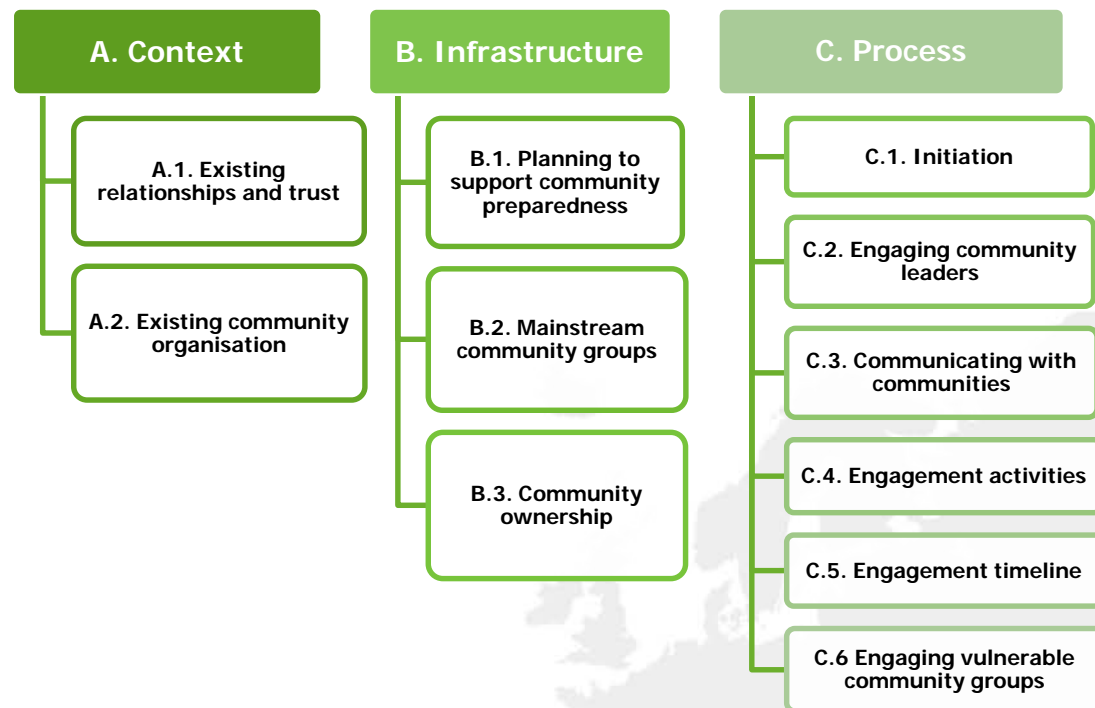




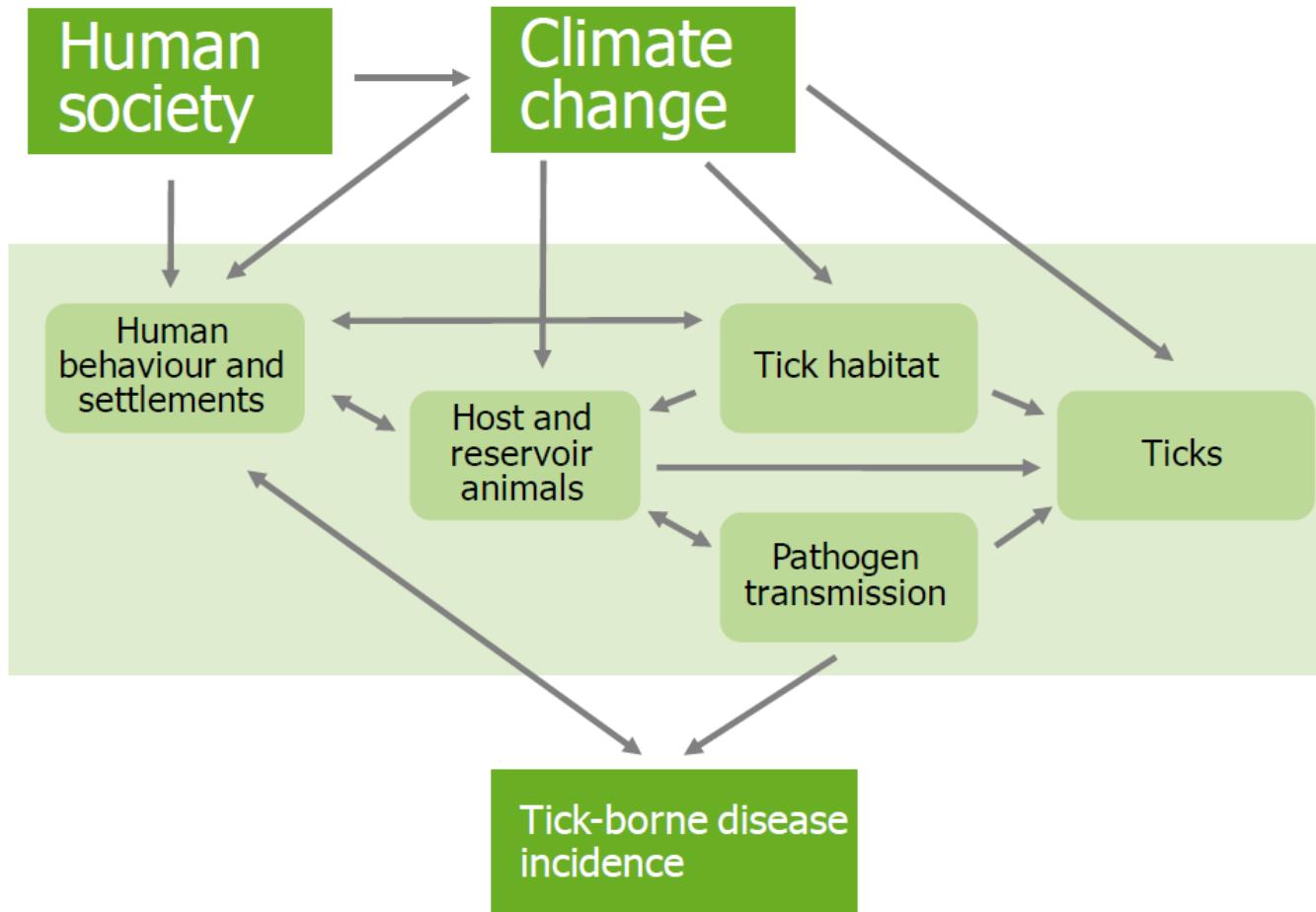
## Background

The potential **contribution** of **communities** to emergency preparedness has often been **overlooked** by governments.

Typically plans involve little consultation with the public and are **top-down**, heavily **guided** by the **government** and public health agencies.



# Tick-borne diseases



# Phase II: Empirical data gathering

## Community and Institutional Synergies, Tick-Borne Diseases November 2017

### *Specific aim of this case study project*

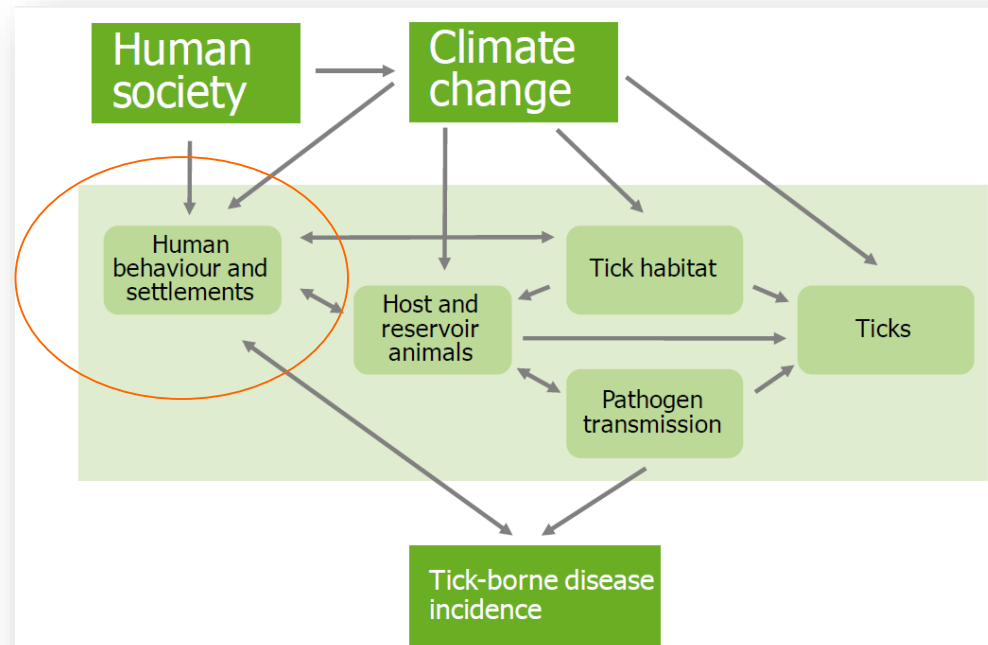
- *To collect evidence regarding, and to identify good practices related to community preparedness for public health emergencies in the EU, with a focus on tick-borne diseases.*

### *Spain*

- *Crimean-Congo Haemorrhagic Fever (first autochthonous cases in August/September 2016)*

### *Netherlands*

- *Lyme Borreliosis (endemic)*
- *Tick-borne Encephalitis (first autochthonous cases in July 2016)*

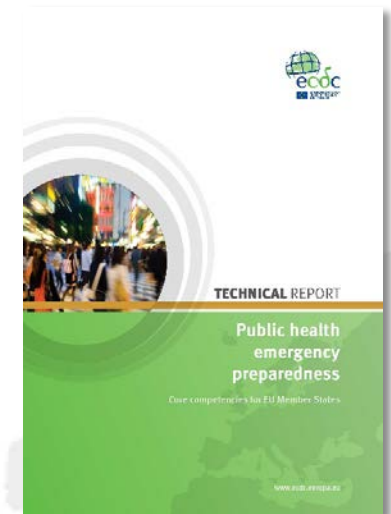


# Phase III: Technical guidance

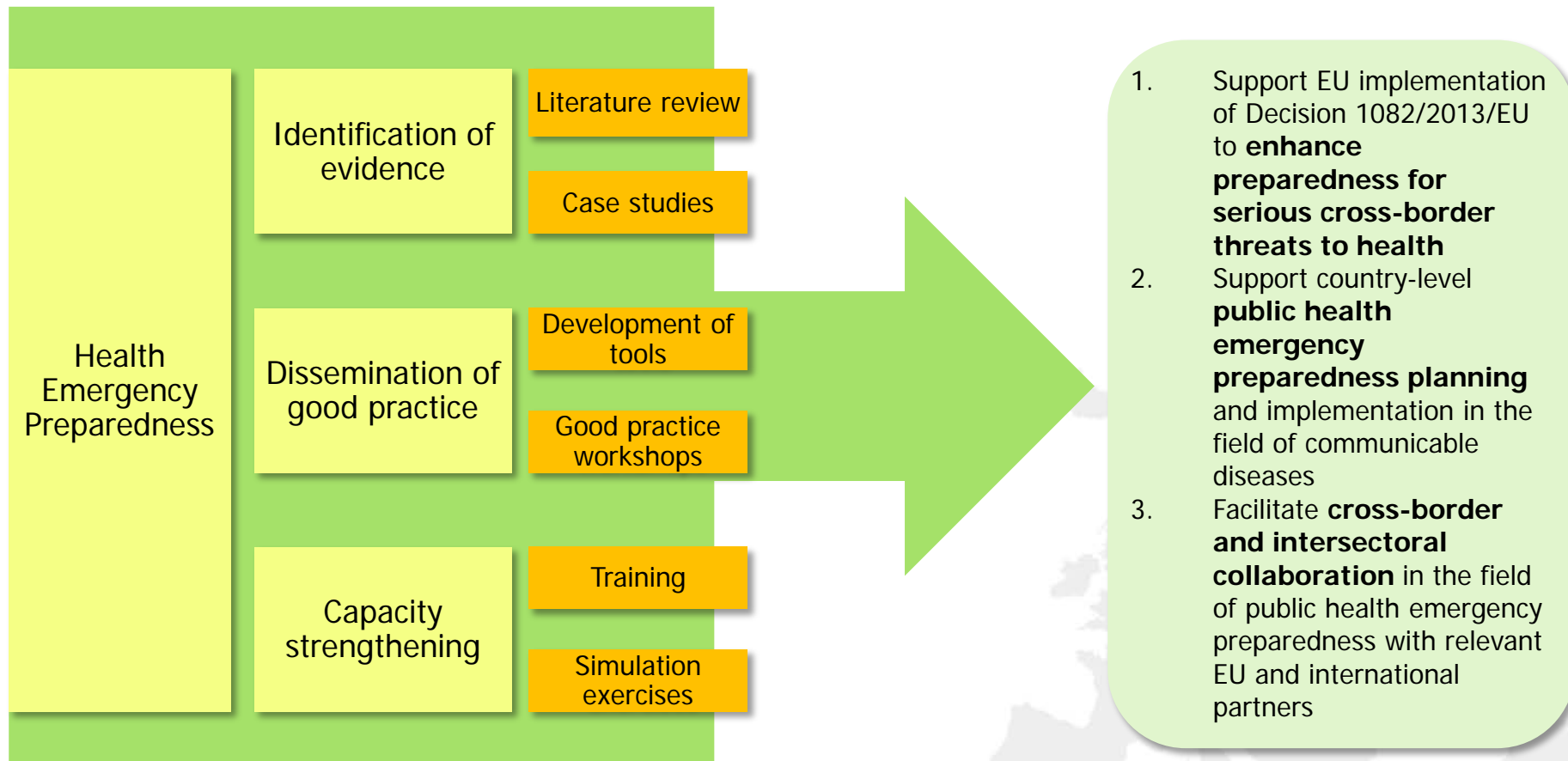
## Community and Institutional Synergies, in PHEP 2018

### *Objectives*

- *How to engage community leaders in all stages of PHEP*
- *ERC with communities*
- *Engagement process*
- *Engaging vulnerable groups*
- *Anticipation -> Response -> Recovery in PHE Planning*



# ECDC Country Preparedness Support



# ECDC contribution to health security

## Prevention

- Scientific research and guidance
- Health determinants
- Prevention guidance (AMR, VPD)
- Risk communication

## Preparedness

- National risk assessments > preparedness priorities
- Preparedness plans
- Inter-operability of plans
- Intersectoral collaboration
- Training & Exercising
- Crisis management procedures
- COOP plans
- Evaluation

## Early warning

- Epidemic Intelligence
- Risk Monitoring
- Rapid Alert
- Risk Assessment
- Public Communication

## Surveillance

- EU Surveillance
- Support to Risk Management
- Outbreak Communication

## Outbreak Response Assistance

- Outbreak investigation
- Mobilisation of networks
- Deployment of OAT

## Recovery

- Guidance on rehabilitation/ decontamination
- Crisis Mgt and Response Evaluation
- Lessons identified > case studies
- Update detection/response protocols

Prevention

Preparedness

Response

Recovery

# In summary, we must continue

1. Working towards real-time evidence based on cross-sectoral and multidisciplinary research and studies
2. Providing tools to facilitate the work of Member States and the European Commission on preparedness and response
3. Conducting risk assessment and providing scientific guidance
4. Supporting countries to strengthen their public health systems, with consideration to gaps and particular needs to develop management and frontline staff competencies
5. Facilitating exchange of experience across sectors and borders to share lessons learned from response/recovery
6. Promoting community and participatory approaches to preparedness





# Planning and Preparedness

“By failing to prepare, you are preparing to fail.”



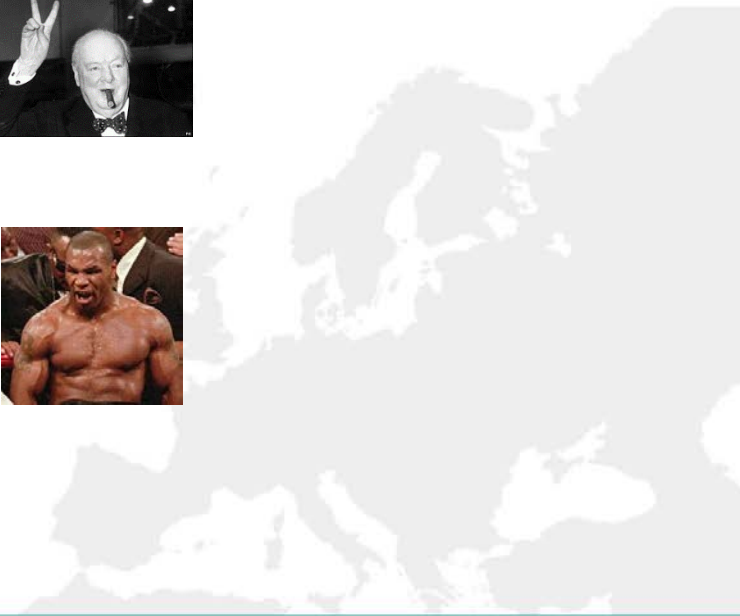
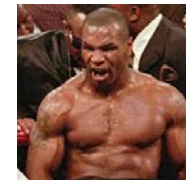
“Give me six hours to chop down a tree and I will spend the first four sharpening the axe.”



“Plans are of little importance, but planning is essential.”

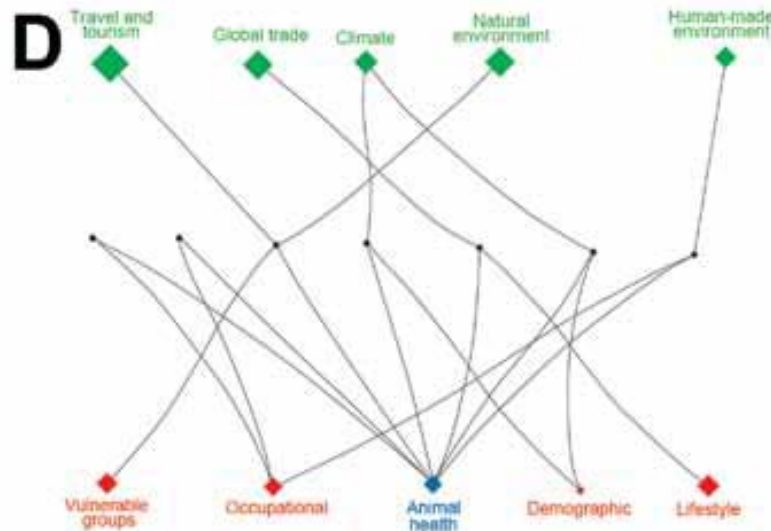
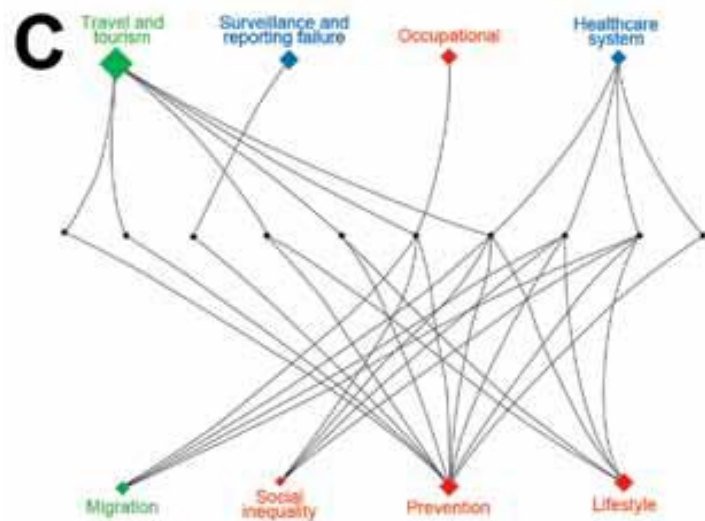
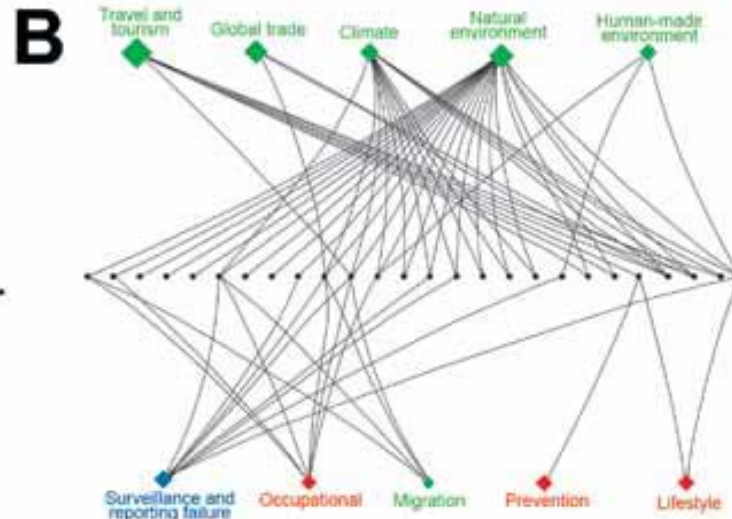
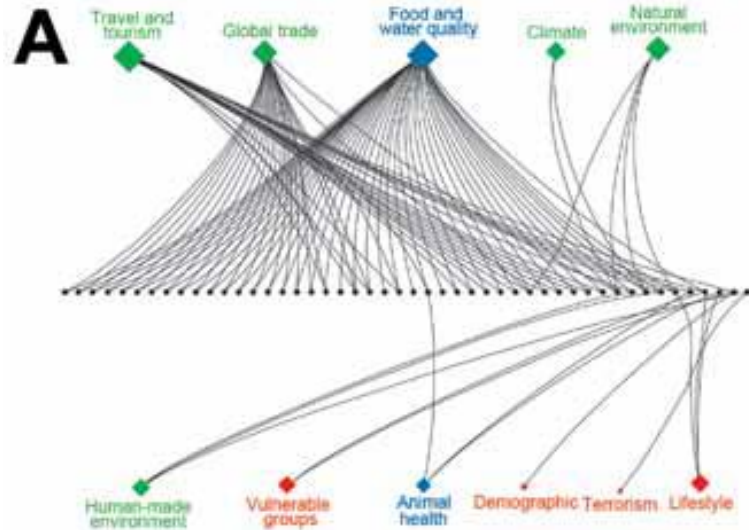


“Everybody has a plan until they get punched in the face.”



# Food and waterborne

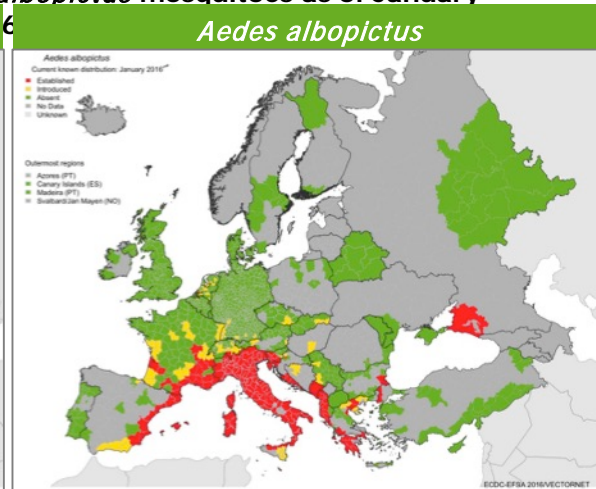
# Vector and rodentborne



## Other zoonoses

## Vaccine preventable

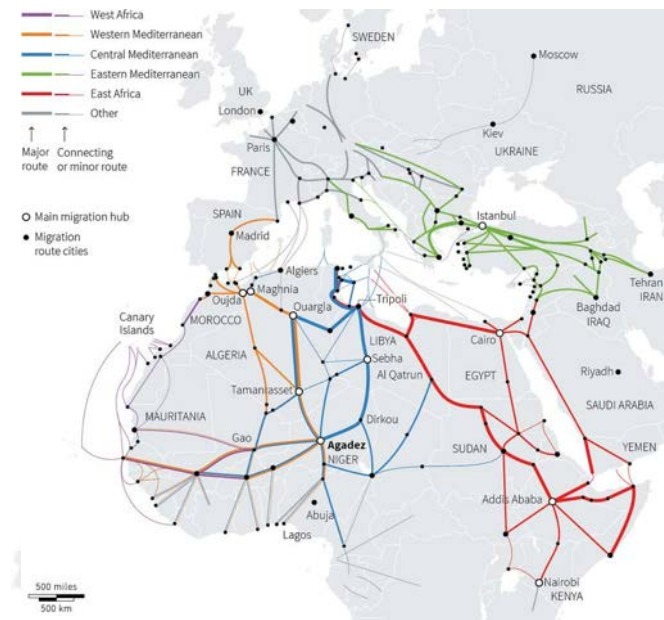
# Distribution of the *Aedes aegypti* and *albopictus* mosquitoes as of January



■ Established    
 ■ Introduced    
 ■ No data/unknown    
 ■ Absent



## Migration flows into Europe

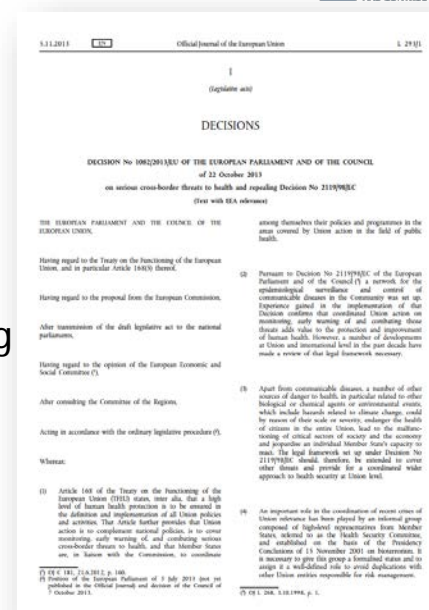


# Decision 1082/2013/EU

## Article 4. Preparedness and Response Planning

4.1: MS and Commission to consult each other via HSC, aimed at:

- Sharing best practice and experience in preparedness and response planning
- Promoting the **interoperability** of national preparedness planning
- Addressing the **intersectoral** dimension of preparedness and response planning at the Union level; and
- Supporting the **implementation** of core capacity requirements for surveillance and response as referred to in Articles 5 and 13 of the IHR



4.2: Member States obligations to provide Commission with updates of preparedness and response planning (every 3 years). Information to include:

- status of implementation of core capacity standards (IHR)
- description of measures or arrangements aimed at ensuring interoperability between the health sectors and other sectors including the veterinary sector
- business continuity planning

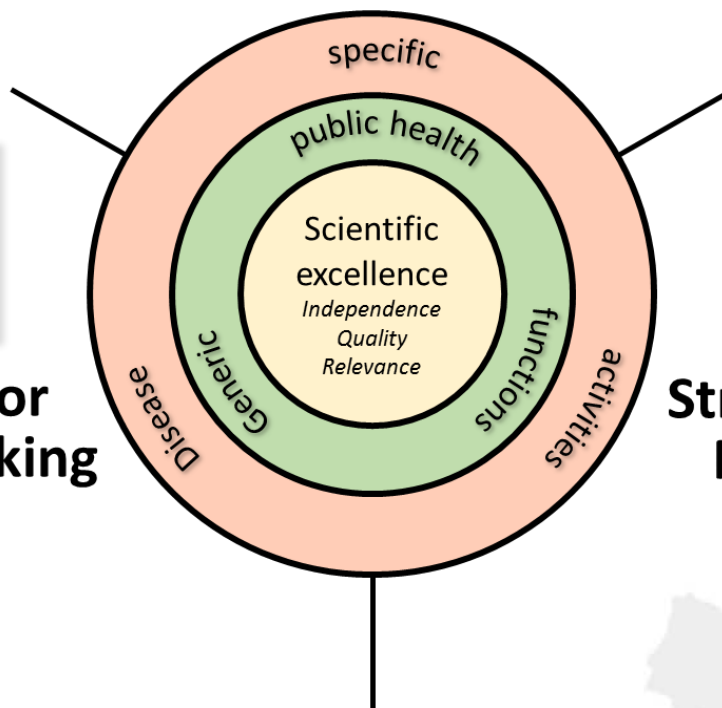
# ECDC Strategic work areas

Effective health threats detection,  
assessment and control

## Supporting response to threats

Efficient public health  
decision-making by providing  
timely, accurate and relevant  
information

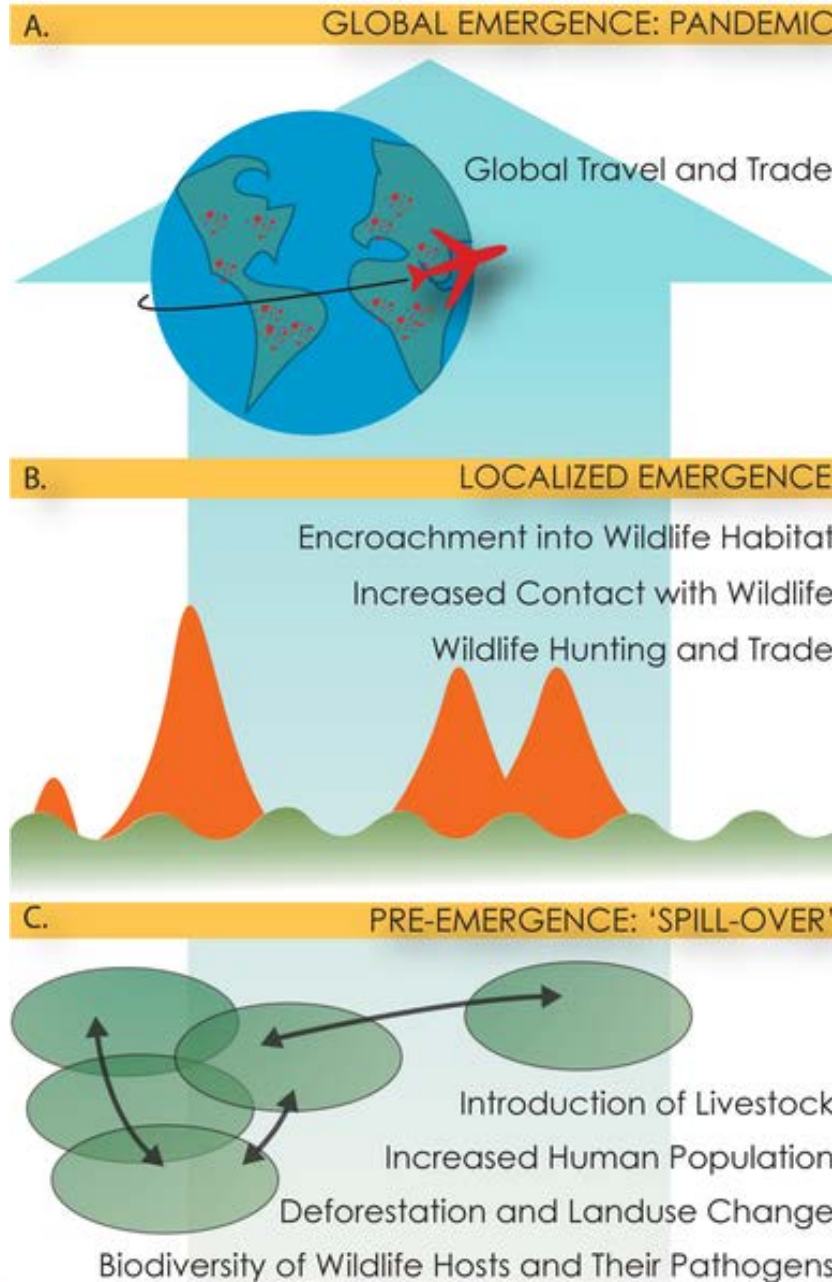
## Evidence for decision making



Strengthening European  
capacities and capabilities to  
effectively prevent and control  
of communicable diseases

## Strengthening PH systems

# Multi-scale, multi-step process of pandemic emergence



# What EU NFP for Preparedness want



ECDC's preparedness areas planned for 2017	Member State priority (n=17)	Support type*						
		Expert/regional* meeting	Handbook/guidance	Literature review	Simulation exercise	Sharing best practices	Training	Country assessment/peer review visits
Emergency risk communication	12	3	6	3	5	4	5	1
Strategic planning guidance	12	3	6	3	2	5	4	2
Cross sectorial PHEP**	10	2	5	2	7	8	5	3
Influenza pandemic preparedness	10	1	4	2	2	7		
Prioritization in PHEP (Risk ranking study)	10	3	6	5		5	3	
Promote the use of tools for self-assessment of PHEP	10	2	5	3	2	6	5	
PHEP competencies and curricula	7	1	4	2		4	2	
Standardisation of Critical Incident Review (CIR) / after action reviews	7		6	1		3	2	
Bio risk and mitigation	6	1	5	3	1	5	2	1
Fostering operational research in PHEP	6		2	2		3	1	
Decision making (policy) and elements of social, cultural context in the implementation of operational plans in response to PHE	5		4	1	1	3	1	

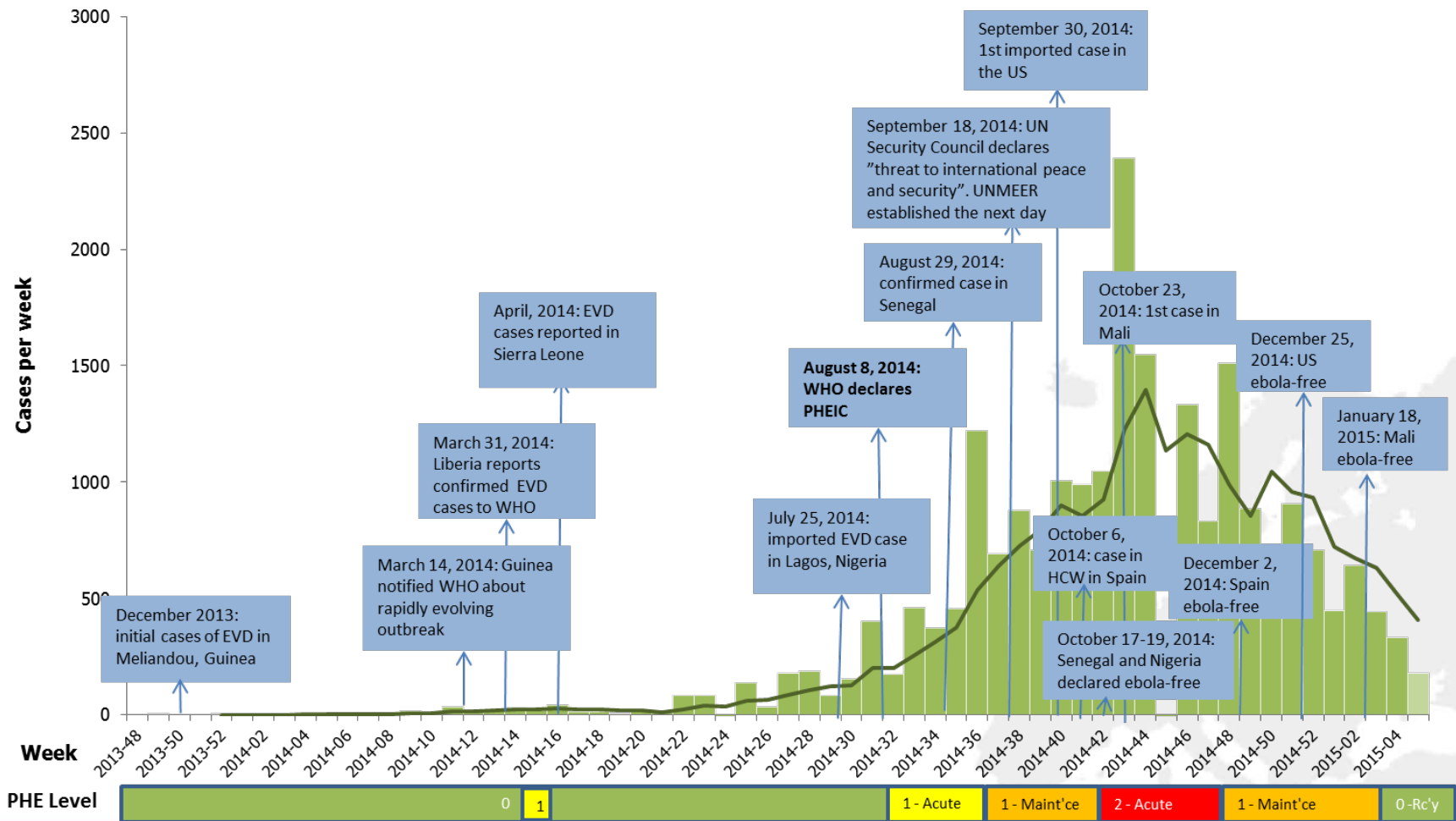
\* Note that this is potential support, depending on the availability of resources, ECDC can provide support. Also note that this is for planned needs. Support during emergencies/outbreaks can be requested ad hoc.

\*\* PHE(P) = Public Health Emergency (Preparedness)

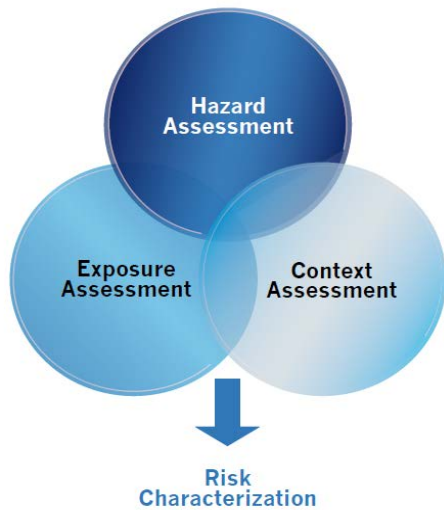
# ECDC

## Public Health Emergency levels 1 & 2

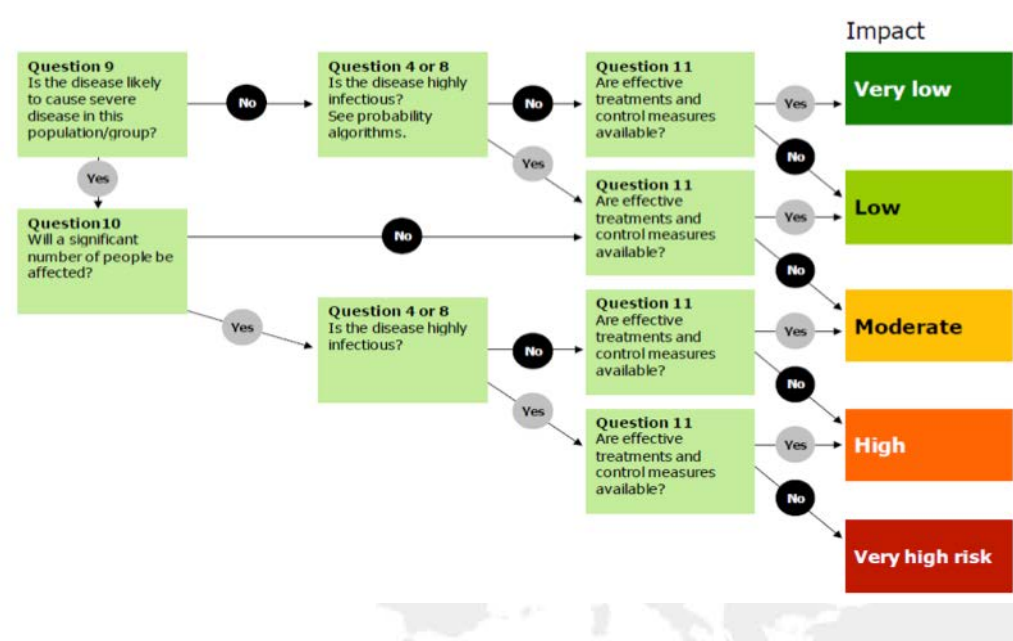
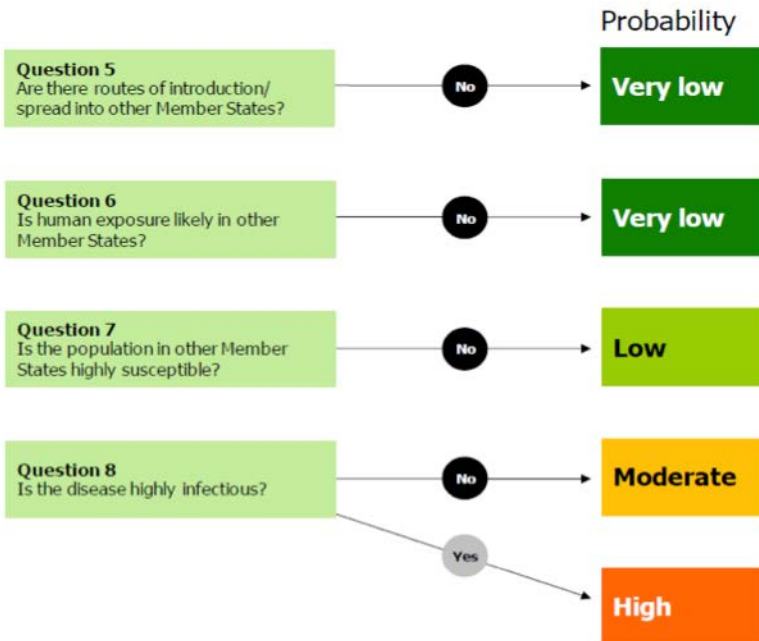
**EVD epidemic: Timeline of Events**







Probability \ Impact	Very low	Low	Moderate	High
Very low	Very low risk	Low risk	Low risk	Moderate risk
Low	Low risk	Low risk	Moderate risk	Moderate risk
Moderate	Low risk	Moderate risk	Moderate risk	High risk
High	Moderate risk	Moderate risk	High risk	High risk
Very high	Moderate risk	High risk	High risk	Very high risk





Material



Donning  
(putting on the PPE)



Doffing  
(taking off the PPE)



Practical  
considerations



**Translation is not enough**

Cultural adaptation of health communication materials

A five-step guide