



REPORT ON TRAINING NEEDS

WP8 - Training and local exercises, exchange of working practices

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Abbreviations

AMR	Antimicrobial resistance
DG SANTE	Directorate-General for Health and Food Safety
ECDC	European Centre for Disease Prevention and Control
EEA	European Economic Area
EU	European Union
GNI	Gross national income
HAI	Healthcare-associated infections
HSC	Health Security Committee
IHR	International Health Regulations
IPC	Infection Prevention and Control
JEE	Joint External Evaluation
MS	Member State
NFP	National Focal Point
PoE	Points of Entry
SHARP JA	Joint Action on Strengthened International Health Regulations and Preparedness in the EU
SPAR	States Parties Annual Report
UK	United Kingdom
WGS	Whole Genome Sequencing
WHO	World Health Organisation
WP	Work Package

1. Background

The International Health Regulations, IHR (2005) is a legal international instrument launched by WHO aiming to strengthen global health security and to help the international community to prevent and respond to public health threats (1).

The IHR obliges Member States to fulfil certain public health capacities to ensure proper systems to detect, assess and report on public health events.

As an instrument at EU level to support the implementation of the IHR (2005), the European Parliament and the Council adopted Decision 1082/2013/EU of further strengthened EU regional coordination.

The SHARP Joint Action will strengthen implementation of Decision 1082/2013/EU, supporting the EU level preparedness and responses to health threats and the implementation of the International Health Regulations (2005).

Specific objective of the SHARP JA is to increase professionals' capacities in IHR implementation and preparedness for serious cross-border health threats in the SHARP JA participating countries.

The SHARP JA consists of 10 Work Packages, covering core public health capacities according to the IHR (2005).

WP8 (Training and local exercises, exchange of working practices) aims to improve the capacity of professionals in regards to IHR implementation and preparedness for serious cross-border health threats in the MS and JA partner countries.

Assessment of the cross-sectoral training needs in EU, EEA and neighbouring countries related to preparedness and IHR implementation is to indicate areas where training may be required.

2. Methodology

The method of the assessment of the cross-sectoral training needs is a desk-based review. Available results of existing assessments are collected and mapped, in order to better understand the actual gaps in the capacity of human resources, including regional differences.

The sources of data were the Progress report on preparedness and response planning under decision 1082/2013/EU (art. 4), the ECDC capacity and training needs assessment, reports from WHO Joint External Evaluations, and State Party self-assessment Annual Reporting.

The Decision (2) requests EU Member States and EEA countries to update the Commission every three years on their preparedness and response planning at national level, including the implementation of the International Health Regulations. The Commission opens discussion in the Health Security Committee (HSC) on the gaps and needs to strengthen preparedness and response planning based on progress report.

A detailed report of the EU state of play in terms of Preparedness and Response planning to address health threats (Article 4 of Decision 1082/2013/EU on serious cross-border threats to health) has been prepared by the EU Commission Directorate General for Health and Food Safety (DG SANTE) in collaboration with the ECDC. This report, prepared for the Health Security Committee, is not available for public circulation, but the summary of the reports' main findings is available, and is used in this assessment.

The ECDC capacity and training needs assessment (3) elaborates the data collected through the second 2018 ECDC capacity and training needs assessment survey. One of the aims of the survey is to define the training needs in the EU/EEA countries. The Report of survey results shows the perceived needs for training in the field of communicable disease prevention and control.

The domains and sub-domains used in the ECDC capacity and training needs assessment were based on a selection of core competencies identified for public health epidemiologists and microbiologists in communicable disease prevention and control.

Of the 31 countries invited to participate, 14 responded to the training needs assessment survey. Among the 14 countries that participated in the training needs assessment, 11 are SHARP JA participating countries - Austria, Croatia, Czech Republic, Estonia, Finland, Germany, Hungary, Ireland, Lithuania, Poland and Sweden.

The JEE is a voluntary, collaborative and multisectoral process to assess country capacity to prevent, detect and rapidly respond to public health risks. The purpose of the external evaluation is to assess the country-specific status, progress in achieving the targets under Annex 1 of the IHR, with regard to their surveillance, reporting, notification, verification,

response and collaboration activities and their activities concerning designated airports, ports and ground crossings, and to recommend priority actions to be taken across the 19 technical areas being evaluated (4).

The JEE tool indicates the implementation status of each core capacity by a score, which reflects the country's level of advancement. The level of advancement is scored with colour coding. Red colour means - no capacity, yellow colour signifies limited and developed capacity, while green colour indicates demonstrated and sustainable capacity.

So far, the JEE has been conducted in 6 SHARP JA participating countries – Finland, Latvia, Lithuania, Moldova, Serbia and Slovenia. Germany has also performed a JEE but the Mission Report is not available to the public yet. All these countries, except Finland, have a Gross national income less than 90% of the EU average.

The SPAR tool consists of 24 indicators for the 13 IHR capacities. The indicators, graded into five levels of performance, are used to measure the status of each capacity. To obtain the most accurate view of national capacities, it is recommended to respond to all the indicators and select one level per indicator. If two or more levels are selected, the lowest level will be regarded as the implementation status. If none of levels is selected, it is regarded as no capacity exists and the final score for this indicator will be calculated as zero (5).

While the JEE is voluntary, the submission of the IHR Annual Report using the SPAR tool is mandatory. Accordingly we have data for all countries participating in the SHARP JA.

Data obtained from SPAR conducted in 2019 were analysed and presented for all 26 countries participated in SHARP JA (Table 1), for the group of 15 countries with low Gross national income (GNI), for 6 regions (North, South, West and Central Europe, Baltic and Balkan Countries), as well as for each country individually.

Table 1. List of SHARP JA participating countries by GNI, 2019

Country	GNI < 90% EU average	GNI ≥ 90% EU average
Austria		√
Bosnia and Herzegovina	√	
Croatia	√	
Czech Republic	√	
Denmark		√
Estonia	√	
Finland		√
France		√
Germany		√
Greece	√	
Hungary	√	
Italy		√
Ireland		√
Latvia	√	
Lithuania	√	
Malta	√	
Moldova	√	
Netherlands		√
Norway		√
Poland	√	
Portugal	√	
Serbia	√	
Slovenia	√	
Spain	√	
Sweden		√
United Kingdom		√

Source of data: Third Health Programme countries gross national income. Available at:
https://ec.europa.eu/chafea/health/funding/joint-actions/documents/gni-ja-2019_en.pdf

3. Results

The results are presented by source of data:

- o European Commission. Progress report on preparedness and response planning under decision 1082/2013/EU (art. 4)
- o ECDC capacity and training needs assessment
- o Joint External Evaluation
- o State Party self-assessment Annual Reporting

3.1 European Commission. Progress report on preparedness and response planning under decision 1082/2013/EU (art. 4)

The report identified a number of areas of IHR core public health capacities where further improvement can be made, i.e. training and exercises; sharing experiences and joint country visits; technical support and expertise with preparedness and response planning; and enhancement of inter-sectoral collaboration (6).

In particular the report stresses the need to work across sectors on a local, regional and state level, especially between health, food safety and the civil protection sectors. It emphasizes the need to strengthen health systems capacities to detect, assess and respond to cross-border health threats.

According to the report, the overall level of completion of the IHR capacity requirements (as measured by WHO) was above 80% for 11 out of 13 IHR capacity areas.

The areas with capacities higher than 90% are:

- Response
- Zoonotic events
- Food safety and
- Radiation emergencies

The areas with the **highest need for improvement** are:

- *Points of Entry*
- *Human Resources*
- *Actions to maintain and develop all IHR core capacities*

3.2 ECDC capacity and training needs assessment

The domains and sub-domains used in the ECDC capacity and training needs assessment survey were as follows:

√ Communication and advocacy

- Risk communication
- Communication during a public health emergency
- Advocacy
- Use of new communication technologies
- Ethics

√ Laboratory system and methods

- Setting up a digital laboratory-based surveillance system
- Laboratory-based real-time cluster detection and early warning system design and operation
- Pathogen genomics/WGS use for outbreak investigation
- Pathogen genomics/WGS use for enhanced disease surveillance
- Pathogen genomics/WGS use for antimicrobial resistance detection and surveillance
- Laboratory quality assurance
- Laboratory biosafety
- Public health microbiology system organisation and evaluation

√ Surveillance

- Indicator-based surveillance
- Event-based surveillance/Epidemic intelligence
- Reporting surveillance data
- Field studies (Population-based research)
- Surveillance system evaluation
- Setting up a surveillance system
- Biostatistics
- Public health informatics

√ Risk assessment

- Assessment of emerging risk
- Rapid risk assessment

√ Public health emergency preparedness

- Coordination and communication
- Planning
- Design of simulation exercises

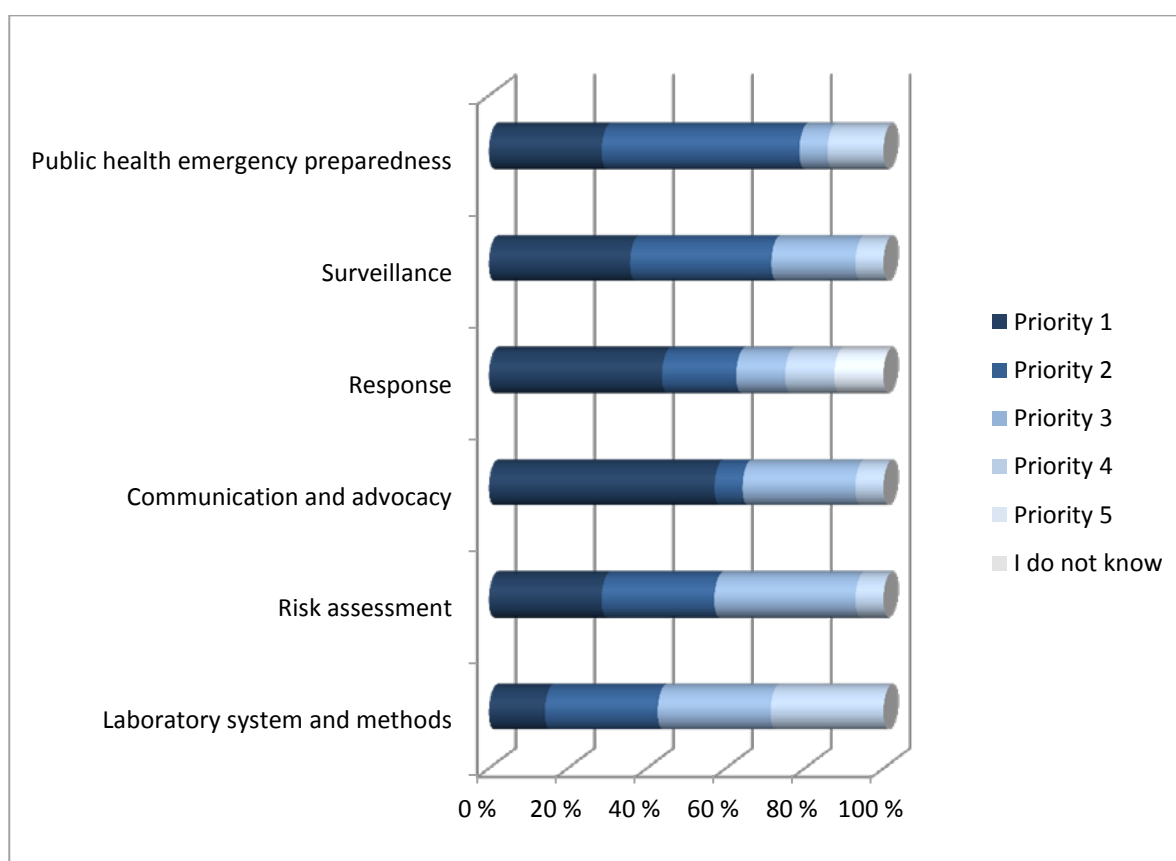
√ Response

- Outbreak investigation
- Outbreak management
- Public health intervention

√ Additional domains

The domains reported as **priority 1 and priority 2** were *public health emergency preparedness* (78.6% respondents), *surveillance* (71.4%) and *response* (71.4%), followed by *communication and advocacy* (64.3%), *risk assessment* (57.1%), and *laboratory systems and methods* (42.9%) (Figure 1).

Figure 1. Training needs priorities



Source of data: ECDC capacity and training needs assessment 2018. Report on 2018 survey. ECDC. 4 September 2020.

The following **sub-domains** selected most often were:

- Planning (public health emergency preparedness domain) 40%
- *Pathogen genomics/whole genome sequencing use for outbreak investigations* (laboratory and system methods domain) 40%
- *Event-based surveillance/epidemic intelligence* (laboratory and system methods domain) -30%
- *Biostatistics* (laboratory and system methods domain) 30%
- *Risk communication* (communication and advocacy domain) 30%
- *Communication during a public health emergency* (communication and advocacy domain) 30%
- *Outbreak investigation* (response domain) 30%

There were provided additional information on training needs including **combination of public health functions** and disease-specific needs:

- *The vaccination and vaccine hesitancy field*
- *The need to tackle vaccine hesitancy through training in communication and advocacy, addressing behaviour change and using new communication technologies,*
- *Surveillance and management of vaccine-preventable diseases,*
- *Assessment of emerging risks from vaccine-preventable diseases*
- *Response to outbreaks caused by vaccine-preventable diseases*

The following additional domains with a need for training were recognised:

- *Contact tracing and root cause analysis*
- *Control activities, surveillance validation and outbreak management in the areas of antimicrobial resistance (AMR) and healthcare-associated infections (HAI)*

3.3 Joint External Evaluation

The JEE is a voluntary assessment of country capacity to prevent, detect and rapidly respond to public health risks. It consists of 19 technical areas grouped into four core areas:

- Prevent
 - √ National legislation, policy and financing
 - √ IHR coordination, communication and advocacy
 - √ Antimicrobial resistance
 - √ Zoonotic disease
 - √ Food safety
 - √ Immunization

- Detect
 - √ National laboratory system
 - √ Surveillance
 - √ Reporting
 - √ Human resources

- Respond
 - √ Emergency preparedness
 - √ Emergency response operations
 - √ Linking public health and security authorities
 - √ Medical countermeasures and personnel deployment
 - √ Risk communication

- IHR related hazards and points of entry.
 - √ Points of entry
 - √ Chemical events
 - √ Radiation emergencies

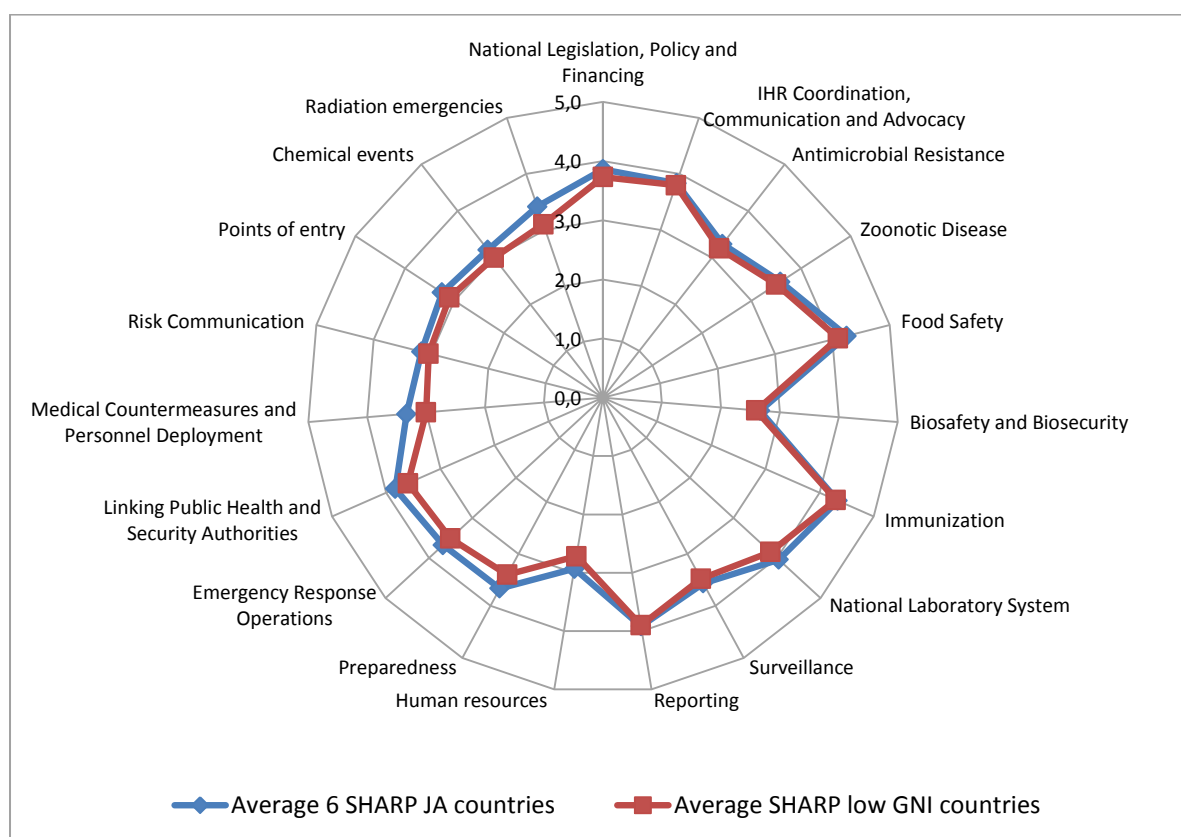
The JEE has been conducted in 6 SHARP JA participating countries – Finland, Latvia, Lithuania, Moldova, Serbia and Slovenia (7). Germany also performed a JEE in 2019, but the Mission Report is not publicly available yet. All 6 countries, except for Finland, have a gross national income less than 90% of the EU average.

The average level for all 19 technical areas in the 6 SHARP JA participating countries is 3.6 (3.4 in low GNI countries). The highest level one can achieve is 5. The areas with the highest levels are Immunization (4.3 and 4.3 respectively), Food safety (4.3 and 4.1 respectively), and National laboratory system (4.0 and 3.9 respectively), while the lower levels were in the following areas:

- √ Biosafety and biosecurity – 2.7 (2.6)
- √ Human resources/Workforce development – 2.9 (2.7)
- √ Risk communication – 3.2 (3.0)
- √ Chemical events – 3.2 (3.0)
- √ Medical Countermeasures and Personnel Deployment – 3.3 (3.0)
- √ Points of entry – 3.3 (3.1)
- √ Antimicrobial resistance – 3.3 (3.2)

All 19 JEE areas' average values are presented in Figure 2.

Figure 2. The average capacities in 19 JEE technical areas, SHARP JA participating countries, 2017-2018



Source of data: WHO European Region: JEE mission reports. Available at <https://www.who.int/ihr/procedures/mission-reports-europe/en/>

Among 6 countries participating in SHARP JA that have conducted the Joint External Evaluation, the highest average level was recorded in Finland (4.3), followed by Slovenia (4.1), Latvia (3.7), Lithuania (3.7), Moldova (2.9), and Serbia (2.8).

Finland, with the highest average level, had only three, out of the 19, technical areas scored less than four - *Biosafety and Biosecurity* – 3, *Antimicrobial Resistance* – 3.75 and *Risk Communication* – 3.8.

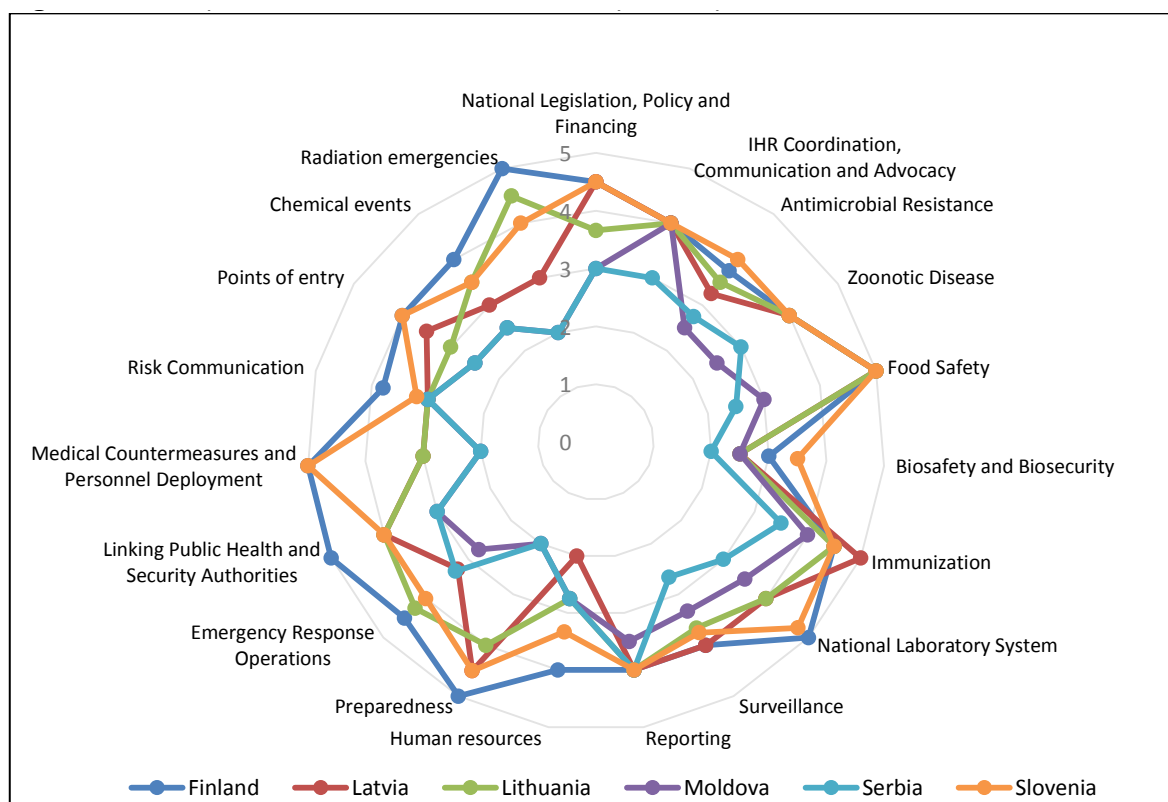
The JEE report from Slovenia showed that five areas have a score less than 4 - *Risk Communication* – 3.2, *Human resources* – 3.3, *Biosafety and Biosecurity* – 3.5, *Chemical events* – 3.5, and *Surveillance* – 3.8.

In Latvia and Lithuania, half technical areas (9) received grade less than 4, while two areas marked less than 3 – *Biosafety and Biosecurity* (2.5) and *Human resources* – 2 and 2.8 respectively.

On the other hand, the JEE in Moldova and Serbia pointed out that the level in almost all technical areas was less than 4 except in *IHR Coordination, Communication and Advocacy*

(Moldova – 4.0), Immunisation (Moldova – 4.0), and Reporting (Serbia – 4.0). The levels in 10 technical areas in these two countries were equal to or less than 3 (Figure 3).

Figure 3. The capacities in 19 JEE technical areas by country, 2017-2018



Source of data: WHO European Region: JEE mission reports. Available at <https://www.who.int/ihr/procedures/mission-reports-europe/en/>

3.4 State Party self-assessment Annual Reporting

Within the State Party self-assessment Annual Reporting there are 13 capacities and 24 indicators to be assessed (5). These capacities and indicators are as follows:

C1: Legislation and financing

- C.1.1 Legislation, laws, regulations, policy, administrative requirements or other government instruments to implement the IHR (2005)
- C.1.2 Financing for the implementation of IHR capacities
- C.1.3 Financing mechanism and funds for the timely response to public health emergencies

C2: IHR Coordination & NFP Functions

- C.2.1 NFP functions under IHR
- C.2.2 Multi-sectoral IHR coordination mechanisms

C3: Zoonotic events and the human-animal interface

C.3.1 Collaborative effort on activities to address zoonoses

C4: Food Safety

C.4.1 Multisectoral collaboration mechanism for food safety events

C5: Laboratory

C.5.1 Specimen referral and transport system

C.5.2 Implementation of a laboratory biosafety and biosecurity regime

C.5.3 Access to laboratory testing capacity for priority diseases

C6: Surveillance

C.6.1 Early warning function: indicator- and event-based surveillance

C.6.2 Mechanism for event management (verification, risk assessment analysis, investigation)

C7: Human Resources

C.7.1 Human resources to implement IHR (2005) capacities

C8: National health emergency framework

C.8.1 Planning for emergency preparedness and response mechanism

C.8.2 Management of health emergency response operation

C.8.3 Emergency resource mobilization

C.9: Health service provision

C.9.1 Case management capacity for IHR relevant hazards

C.9.2 Capacity for infection prevention and control (IPC) and chemical and radiation decontamination.

C.9.3 Access to essential health services

C10: Risk Communication

C.10.1 Capacity for emergency risk communications

C11: Points of Entry (PoE)

C.11.1 Core capacity requirements at all times for designated airports, ports and ground crossings

C.11.2 Effective public health response at points of entry

C12: Chemical events

C.12.1 Resources for detection and alert

C13: Radiation emergencies

C.13.1 Capacity and resources

Data from SPAR 2019 (9) are used to make different levels of the training needs analysis. The need for training was assessed at the level of

- √ All SHARP JA countries
- √ Low GNI SHARP JA countries
- √ Regionally based SHARP JA countries (Northern, Western, Central, and Southern Europe, Baltic and Balkan countries)
- √ Country specific training needs for each of SHARP JA country

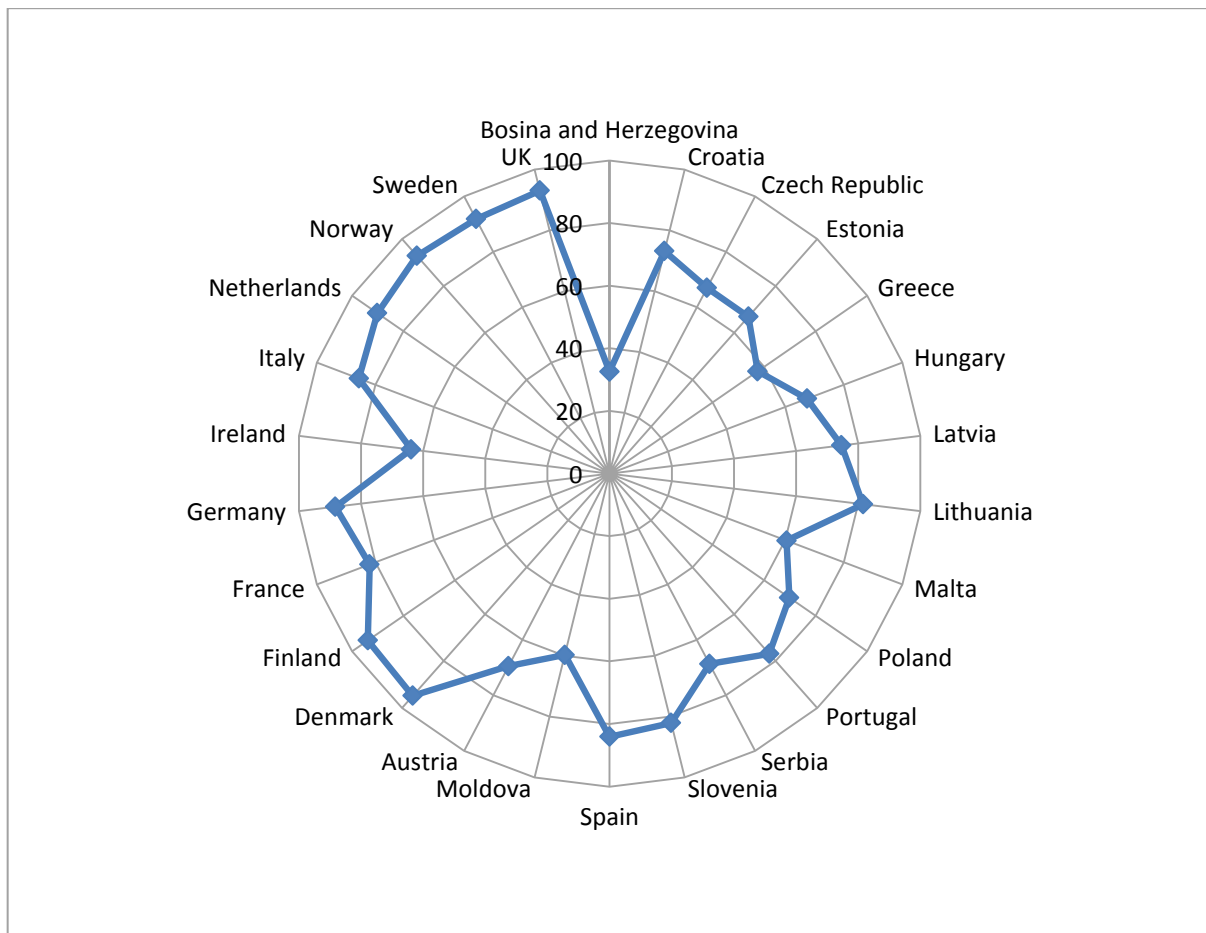
3.4.1 Overall capacities and needs of SHARP JA countries

The overall capacity of the 26 SHARP JA countries is 76%, while the European average is 73%. The countries' capacities in the IHR implementation ranked from 33% (Bosnia and Herzegovina), 57% (Greece), 60% (Malta and Moldova) to 93% (Norway and UK), 94% (Finland) and 95% (Denmark) (Figure 4).

The highest score was reported (Table 1) in the areas:

- C2: IHR Coordination & NFP Functions – 84%
 - C.2.2 Multi-sectoral IHR coordination mechanisms – 87%
- C1: Legislation and financing – 82%
 - C.1.1 Legislation, laws, regulations, policy, administrative requirements or other government instruments to implement the IHR (2005) – 96%
- C5: Laboratory – 82%
 - C.5.1 Specimen referral and transport system – 88%
 - C.5.3 Access to laboratory testing capacity for priority diseases – 88%
 - o C.9 Health service provision – 82%
 - C.9.3 Access to essential health services – 88%
- C4: Food Safety – 82%
- C3: Zoonotic events and the human-animal interface – 81%

Figure 4. Overall IHR capacities of SHARP JA countries



Source of data: IHR SPAR Reports, 2019.

The areas with **lowest scores** (Table 1) and therefore needs for improvements are:

- C11: Points of entry (PoE) – 55%
 - C.11.1 Core capacity requirements at all times for designated airports, ports and ground crossings – 58%
 - C.11.2 Effective public health response at points of entry – 52%
- C10: Risk Communication – 62%
- C12: Chemical events – 68%
 - C.9.1 Case management capacity for IHR relevant hazards – 68%
 - C.5.2 Implementation of a laboratory biosafety and biosecurity regime – 69%
 - C.8.3 Emergency resource mobilization – 69%

Table 1. Overall IHR capacities (in %) of SHARP JA countries

IHR capacity	All countries	Low GNI countries
C1: Legislation and financing	82	78
C.1.1 Legislation, laws, regulations, policy, administrative requirements or other government instruments to implement the IHR (2005)	96	96
C.1.2 Financing for the implementation of IHR capacities	75	67
C.1.3 Financing mechanism and funds for the timely response to public health emergencies"	75	72
C2: IHR Coordination & NFP Functions	84	77
C.2.1 NFP functions under IHR	82	72
C.2.2 Multi-sectoral IHR coordination mechanisms	87	81
C3: Zoonotic events and the human-animal interface	81	71
C.3.1 Collaborative effort on activities to address zoonoses	81	71
C4: Food Safety	82	76
C.4.1 Multisectoral collaboration mechanism for food safety events	82	76
C5: Laboratory	82	74
C.5.1 Specimen referral and transport system	88	84
C.5.2 Implementation of a laboratory biosafety & biosecurity regime	69	59
C.5.3 Access to laboratory testing capacity for priority diseases	88	79
C6: Surveillance	77	66
C.6.1 Early warning function : indicator- and event-based surveillance	82	72
C.6.2 Mechanism for event management (verification, risk assessment analysis, investigation)	73	60
C7: Human Resources	74	67
C.7.1 Human resources to implement IHR (2005) capacities	74	67
C8: National health emergency framework	74	65
C.8.1 Planning for emergency preparedness and response mechanism	72	60
C.8.2 Management of health emergency response operation	81	71
C.8.3 Emergency resource mobilization	69	65
C9: Health service provision	82	76
C.9.1 Case management capacity for IHR relevant hazards	68	60
"C.9.2 Capacity for infection prevention and control (IPC) and chemical and radiation decontamination"	83	77
C.9.3 Access to essential health services	88	80
C10: Risk Communication	62	52
C.10.1 Capacity for emergency risk communications	62	52
C11: Points of entry (PoE)	55	51
C.11.1 Core capacity requirements at all times for designated airports, ports and ground crossings	58	57
C.11.2 Effective public health response at points of entry	52	46
C12: Chemical events	68	60
C.12.1 Resources for detection and alert	68	60
C13: Radiation emergencies	80	73
C.13.1 Capacity and resources	80	73

Source of data: Calculated from IHR SPAR Reports, 2019

3.4.2 Capacities and needs of low GNI SHARP JA countries

Out of 26 countries participating in SHARP JA, 15 are with GNI less than 90% of the EU average. The overall capacity of these countries is 69%, ranging from 33% in Bosnia and Herzegovina to 84% in Spain (Table 1).

The highest score (Table 1) in these countries were in the areas:

- C1: Legislation and financing – 78%
 - C.1.1 Legislation, laws, regulations, policy, administrative requirements or other government instruments to implement the IHR (2005) – 96%
- C2: IHR Coordination & NFP Functions – 77%
 - C.2.2 Multi-sectoral IHR coordination mechanisms – 87%
- C4 Food Safety – 76%
- C.9 Health service provision – 76%
 - C.9.3 Access to essential health services – 80%
 - C.5.1 Specimen referral and transport system – 84%
 - C.5.3 Access to laboratory testing capacity for priority diseases – 79%

The **lowest score** and need for improvement are recorded in the next areas (Table1):

- C11: Points of entry (PoE) – 51%
 - C.11.2 Effective public health response at points of entry – 45%
- C10: Risk Communication – 52%
 - C.5.2 Implementation of a laboratory biosafety and biosecurity regime – 59%
- C12: Chemical events – 60%
 - C.6.2 Mechanism for event management (verification, risk assessment analysis, investigation) – 60%
 - C.9.1 Case management capacity for IHR relevant hazards – 60%
- C8: National health emergency framework – 65%
 - C.8.1 Planning for emergency preparedness and response mechanism – 60%
 - C.8.3 Emergency resource mobilization – 65%
- C6: Surveillance – 66%
- C7: Human Resources – 67%
 - C.1.2 Financing for the implementation of IHR capacities – 67%

3.4.3 Capacity and needs of SHARP JA countries by regions

To have a better understanding of specific training needs in different regions of Europe we made an analysis on average needs per region and IHR capacity. The regions whose needs we have assessed are:

- ✓ Northern Europe
- ✓ Western Europe
- ✓ Central Europe
- ✓ Southern Europe
- ✓ Baltic countries
- ✓ Balkan countries

Northern Europe

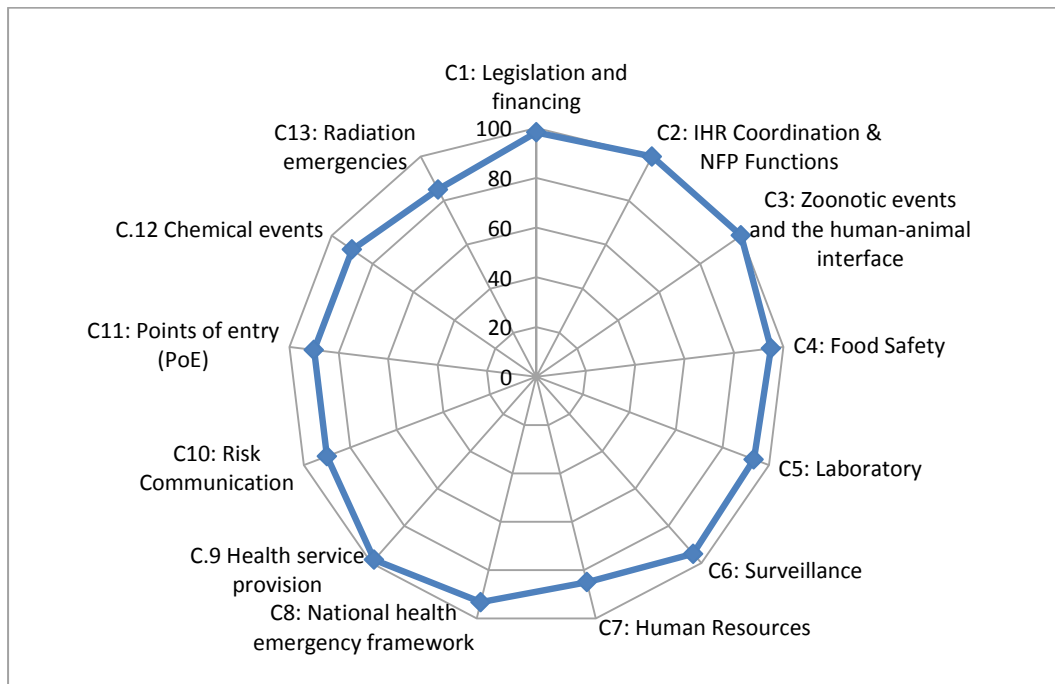
Countries in Northern Europe - Denmark, Finland, Norway, and Sweden (Figure 5) show the highest (94%) overall IHR capacity in comparison with other European regions.

Figure 5. Northern Europe countries participating in SHARP JA



The area specific capacities (Figure 6) ranged from 85% (C7: *Human Resources* and C13: *Radiation emergencies*) to 100% (C2: *IHR Coordination & NFP Functions* and C3: *Zoonotic events and the human-animal interface*).

Figure 6. Overall IHR capacity of Northern Europe countries participating in SHARP JA



Source of data: IHR SPAR Reports, 2019.

Western Europe

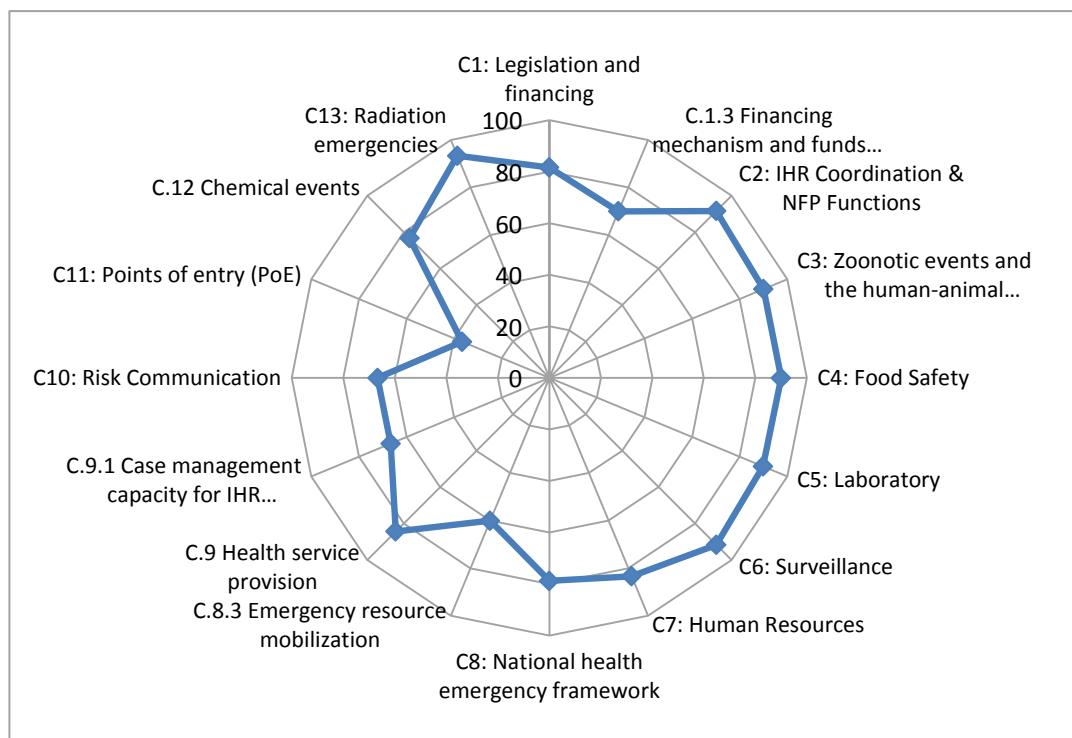
The overall IHR capacity of Western Europe countries – Austria, France, Germany, Ireland, Netherlands, and UK (Figure 7) is 81%

Figure 7. Western Europe countries participating in SHARP JA



The highest IHR capacities are in the next area: *C13: Radiation emergencies* – 93%, *C2: IHR Coordination & NFP Functions* and *C6: Surveillance* – 92%, while **the lowest** are *C11: Points of entry (PoE)* – 37% and *C10: Risk Communication* – 67% (Figure 8).

Figure 8. Overall IHR capacity of Western Europe countries participating in SHARP JA



Source of data: IHR SPAR Reports, 2019.

Central Europe

Countries in Central Europe participating in SHARP JA – Czech Republic, Hungary, and Poland (Figure 9) reported IHR capacities which average score was 68%.

The areas with highest IHR capacities are *C13: Radiation emergencies* – 100% and *C3: Zoonotic events and the human-animal interface* – 87%, and *C2: IHR Coordination & NFP Functions* – 83%. The **lowest capacities** are recorded in *C11: Points of entry (PoE)* – 40%, *C6: Surveillance* – 50%, *C7: Human Resources*, and *C10: Risk Communication* – 53%, *C4: Food Safety* – 60%, and *C8: National health emergency framework* – 69% (Figure 10).

Figure 9. Central Europe countries participating in SHARP JA

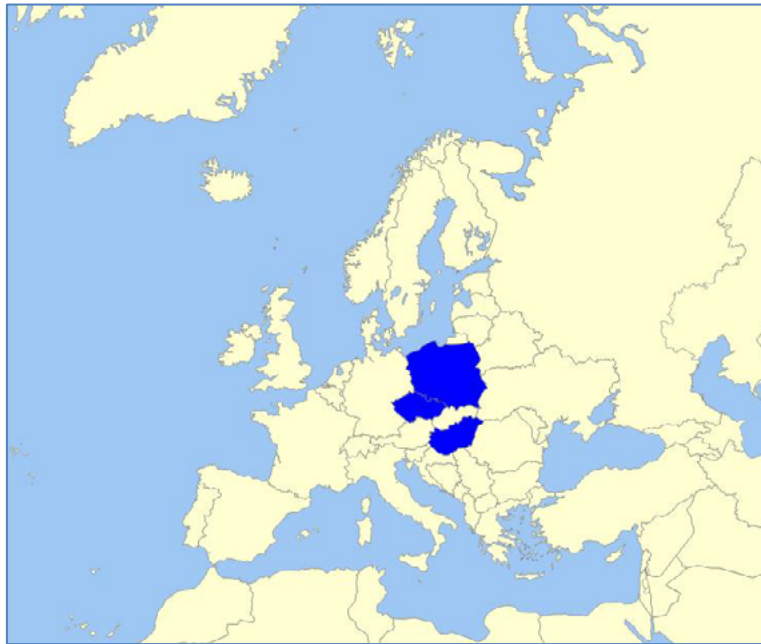
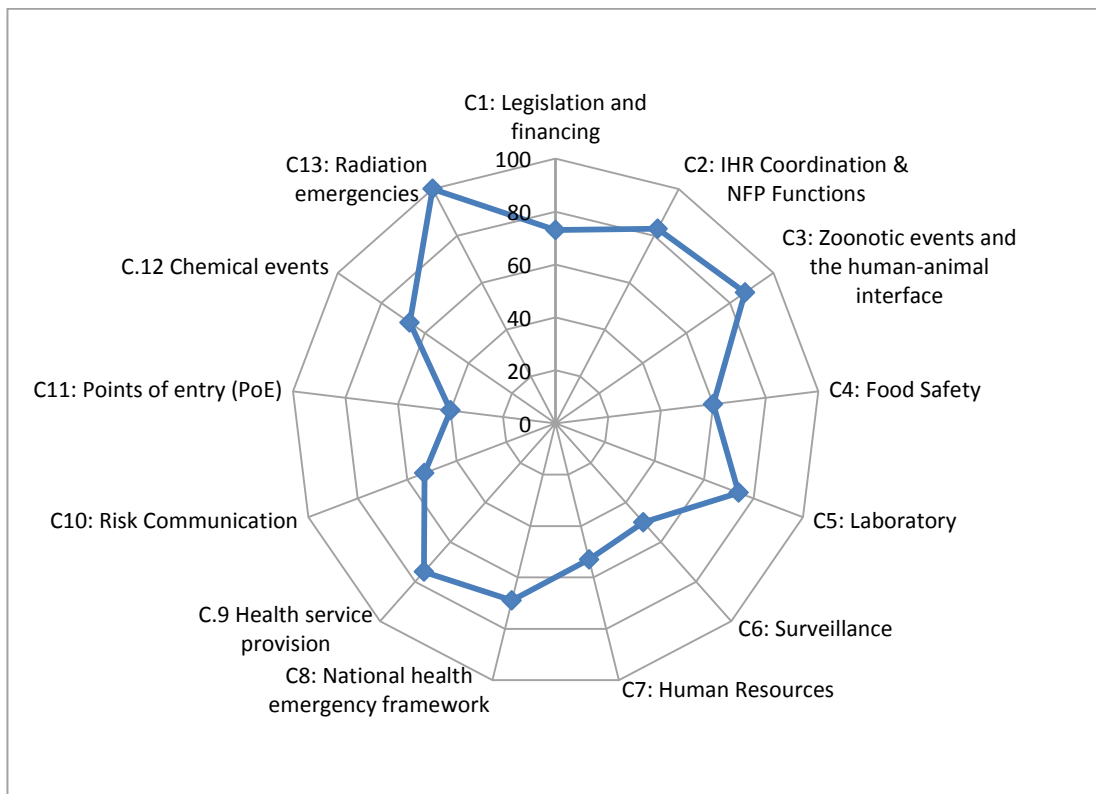


Figure 10. Overall IHR capacity of Central Europe countries participating in SHARP JA



Source of data: IHR SPAR Reports, 2019.

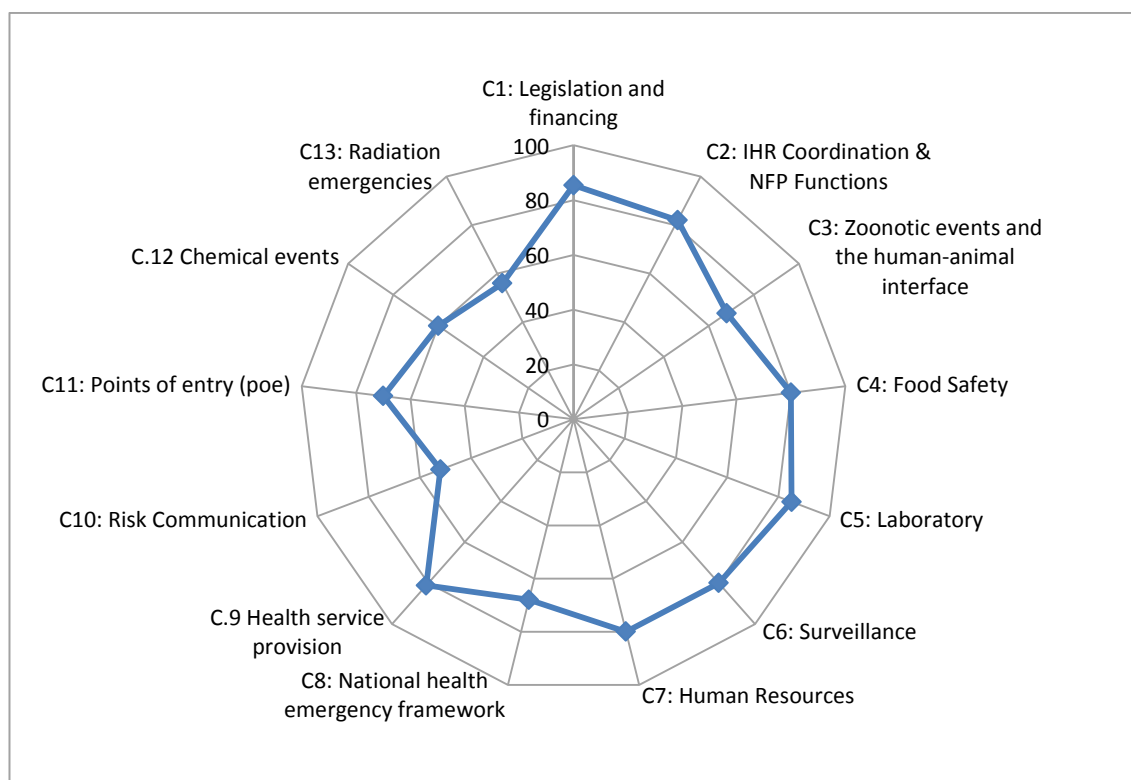
Southern Europe

Overall IHR capacity for Greece, Italy, Malta, Portugal and Spain, countries in the region of Southern Europe (Figure 11) is 73%, amounting from 57% in Greece to 86% in Italy.

Figure 11. Southern Europe countries participating in SHARP JA



Figure 12. Overall IHR capacity of Southern Europe countries participating in SHARP JA



Source of data: IHR SPAR Reports, 2019.

The highest IHR capacities in Southern Europe countries have been noted in *C1: Legislation and financing*, and *C5: Laboratory* – 85%, *C2: IHR Coordination & NFP Functions* – 82% and *C.9 Health service provision* – 81%. The **lowest capacities** are recognised in *C10: Risk Communication* – 52%, *C13: Radiation emergencies* – 56%, *C12: Chemical events* – 60%, *C3: Zoonotic events and the human-animal interface*, and *C8: National health emergency framework* – 68% (Figure 12).

Baltic countries

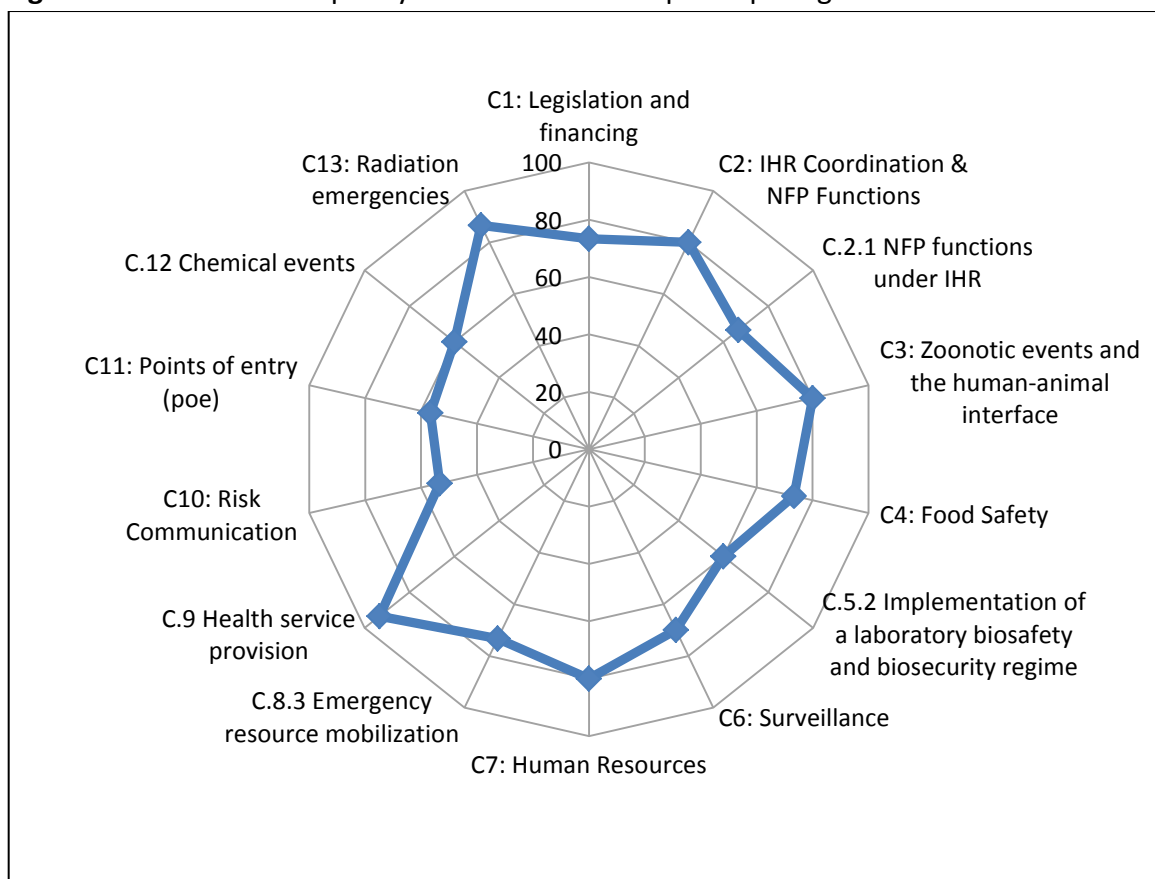
Baltic countries - Estonia, Latvia, and Lithuania (Figure 12) have overall IHR capacities of 74% (from 67% in Estonia to 82% in Lithuania).

Figure 12. Baltic countries participating in SHARP JA



The areas with highest IHR capacities are *C9: Health service provision* – 93% and *C13: Radiation emergencies* - 87%. The lowest capacities exist in *C10: Risk Communication* – 53% and *C11: Points of entry (PoE)* – 57% (Figure 13).

Figure 13. Overall IHR capacity of Baltic countries participating in SHARP JA



Source of data: IHR SPAR Reports, 2019.

Balkan countries

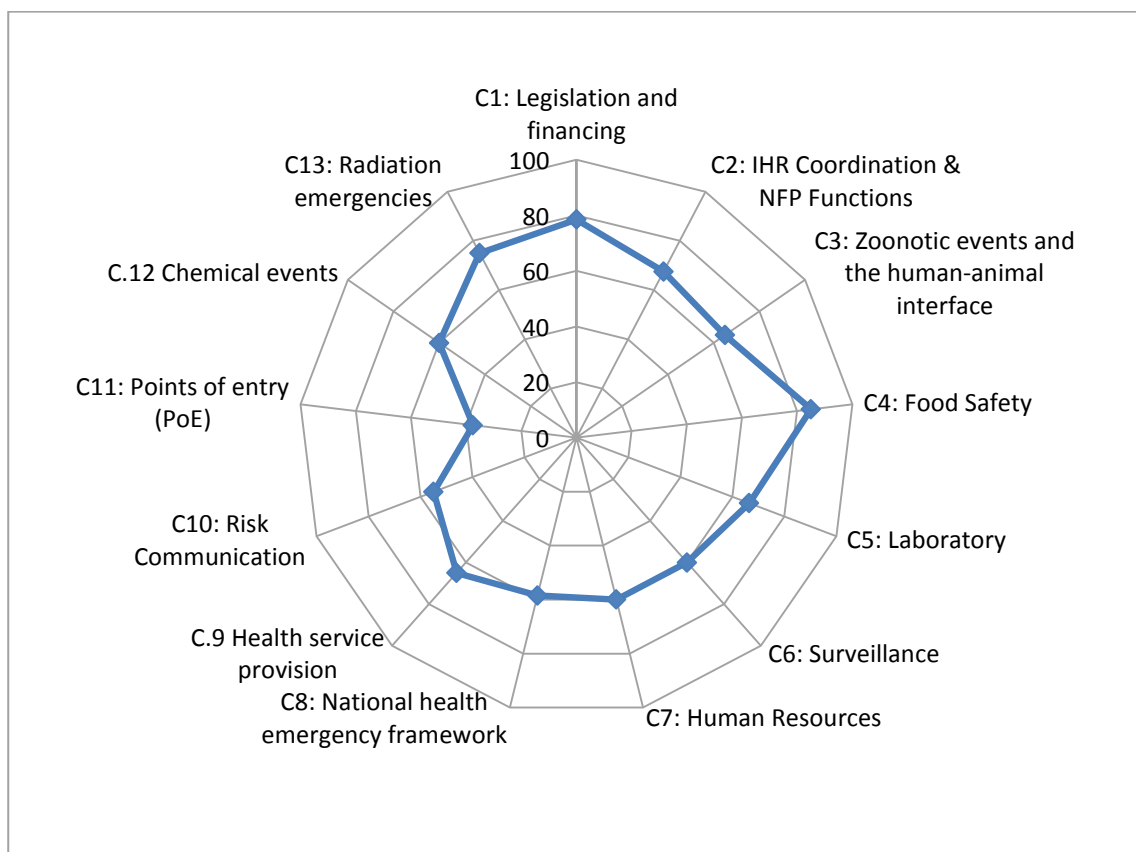
Bosnia and Herzegovina, Croatia, Serbia, and Slovenia represent Balkan countries participating in SHARP JA (Figure 14). The overall IHR capacity of these countries is 64%, ranging from 33% in Bosnia and Herzegovina to 82% in Slovenia.

The area with highest IHR capacity in Balkan countries is C4: Food Safety – 85%. On the other hand, the areas with lowest capacities are C11: Points of entry (PoE) – 38%, C10: Risk Communication – 55%, C8: National health emergency framework – 59%, C6: Surveillance, C7: Human Resources, and C12: Chemical events – 60%, C3: Zoonotic events and the human-animal interface and C9: Health service provision -65%, C5: Laboratory - 67%,and C2: IHR Coordination & NFP Functions – 68% (Figure 15).

Figure 14. Balkan countries participating in SHARP JA



Figure 15. Overall IHR capacity of Balkan countries participating in SHARP JA



Source of data: IHR SPAR Reports, 2019.

Comparative IHR capacities by regions are presented in table 3.

Table 3. IHR capacity (in %) of SHARP JA countries by regions

IHR Area SPAR Tool	North Europe (in %)	West Europe (in %)	South Europe (in %)	Central Europe (in %)	Baltic countries (in %)	Balkan countries (in %)
C1: Legislation and financing	98	82	85	73	73	79
C.1.1 Legislation, laws, regulations, policy, administrative requirements or other government instruments to implement the IHR (2005)	100	93	100	100	100	85
C.1.2 Financing for the implementation of IHR capacities	100	80	80	53	60	70
C.1.3 Financing mechanism and funds for the timely response to public health emergencies	95	70	76	67	60	80
C2: IHR Coordination & NFP Functions	100	92	82	83	80	68
C.2.1 NFP functions under IHR	100	90	84	73	67	65
C.2.2 Multi-sectoral IHR coordination mechanisms	100	93	80	93	93	70
C3: Zoonotic events and the human-animal interface	100	90	68	87	80	65
C.3.1 Collaborative effort on activities to address zoonoses	100	90	68	87	80	65
C4: Food Safety	95	90	80	60	73	85
C.4.1 Multisectoral collaboration mechanism for food safety events	95	90	80	60	73	85
C5: Laboratory	94	90	85	74	80	67
C.5.1 Specimen referral and transport system	100	87	92	87	87	80
C.5.2 Implementation of a laboratory biosafety & biosecurity regime	80	83	72	60	60	55
C.5.3 Access to laboratory testing capacity for priority diseases	100	100	92	73	93	65
C6: Surveillance	95	92	80	50	70	60
C.6.1 Early warning function : indicator- and event-based surveillance	95	93	80	67	80	65
C.6.2 Mechanism for event management (verification, risk assessment analysis, investigation)	95	90	80	33	60	55
C7: Human Resources	85	83	80	53	80	60
C.7.1 Human resources to implement IHR (2005) capacities	85	83	80	53	80	60
C8: National health emergency framework	93	79	68	69	80	59
C.8.1 Planning for emergency preparedness and response mechanism	90	83	72	53	80	55
C.8.2 Management of health emergency response operation	95	93	68	80	87	60
C.8.3 Emergency resource mobilization	95	60	64	73	73	60
C9: Health service provision	98	84	81	75	93	65
C.9.1 Case management capacity for IHR relevant hazards	95	67	72	40	87	55
C.9.2 Capacity for infection prevention and control (IPC) and chemical and radiation decontamination	100	87	80	80	93	65
C.9.3 Access to essential health services	100	100	92	53	100	75
C10: Risk Communication	90	67	52	53	53	55
C.10.1 Capacity for emergency risk communications	90	67	52	53	53	55
C11: Points of entry (PoE)	90	37	70	40	57	38
C.11.1 Core capacity requirements at all times for designated airports, ports and ground crossings	90	37	76	60	60	40
C.11.2 Effective public health response at points of entry	90	37	64	20	53	35
C12: Chemical events	90	77	60	67	60	60
C.12.1 Resources for detection and alert	90	77	60	67	60	60
C13: Radiation emergencies	85	93	56	100	87	75
C13.1 Capacity and resources	85	93	56	100	87	75

Source of data: Calculated from IHR SPAR Reports, 2019.

3.4.4 Country specific training needs for each of SHARP JA country

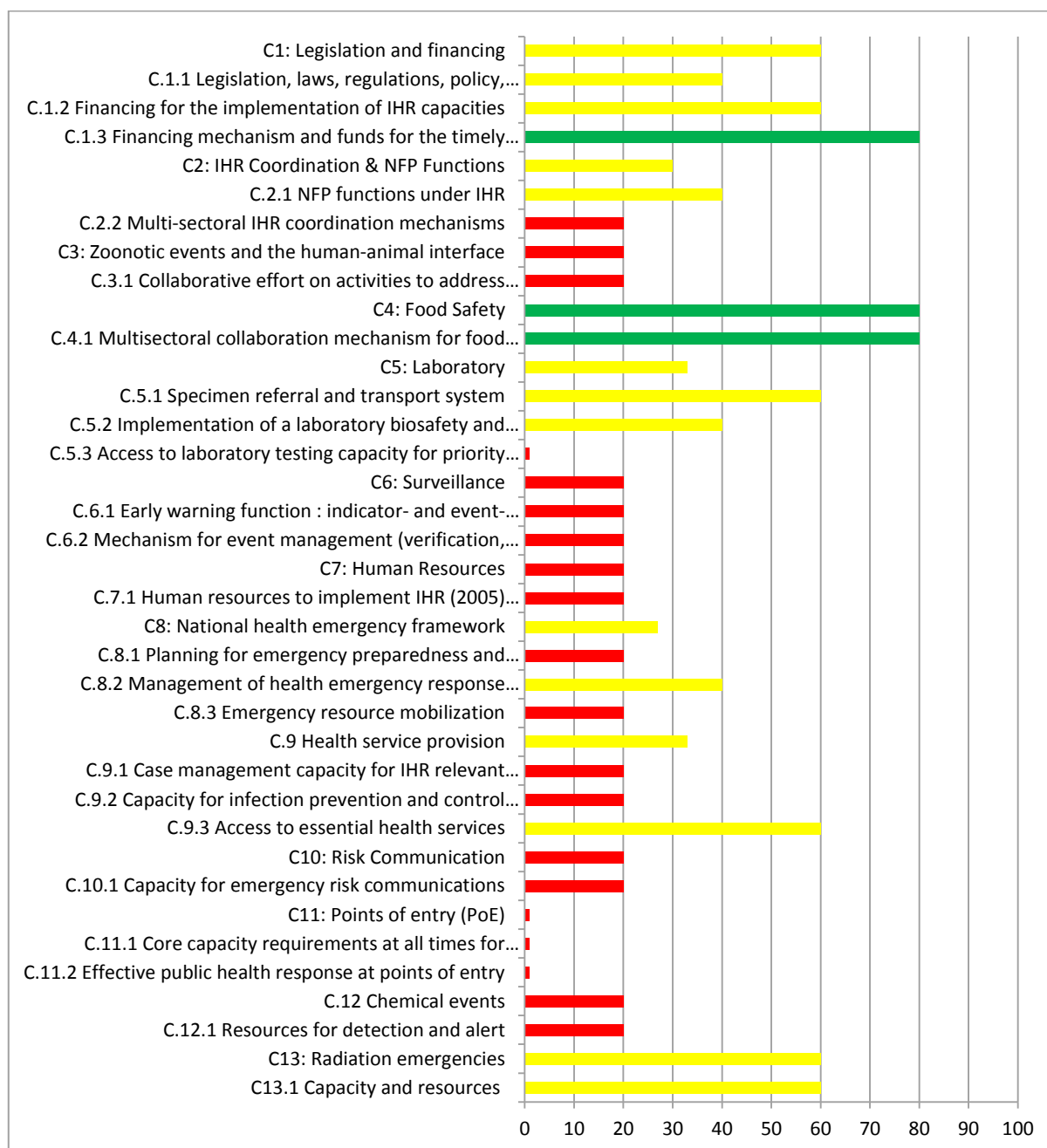
The levels of performance of IHR capacities are presented by colours. Red colour shows capacities equal and less than 30% signifying the highest need for improvement. Capacities from 31% to 70% are coloured in yellow and indicate the existence of capacities with needs for considerable improvement, while the green colour illustrates the highest capacities (more than 70%). We are going to list the overall capacity per country the IHR- areas where the capacity is equal or below 70% in the respective country.

Bosnia and Herzegovina

The overall IHR capacity in Bosnia and Herzegovina is 33% and the areas with lowest capacities and greatest need for training are (Figure 16):

- √ C11: Points of entry (PoE) – 0%
- √ C3: Zoonotic events and the human-animal interface – 20%
- √ C6: Surveillance – 20%
- √ C7: Human Resources – 20%
- √ C10: Risk Communication – 20%
- √ C12: Chemical events – 20%
- √ C8: National health emergency framework – 27%
- √ C2: IHR Coordination & NFP Functions – 30%

Figure 16. IHR capacities in Bosnia and Herzegovina



Source of data: IHR SPAR Reports, 2019.

Croatia

Croatia has the overall IHR capacity of 73%. The lowest capacities are reported in the following areas (Figure 17):

- ✓ C8: National health emergency framework – 47%
- ✓ C10: Risk Communication – 60%
- ✓ C12: Chemical events – 60%

- √ C.9 Health service provision – 67%
- √ C2: IHR Coordination & NFP Functions – 70%

Figure 17. IHR capacities in Croatia



Source of data: IHR SPAR Reports, 2019.

Czech Republic

Czech Republic is a country with overall IHR capacity of 67%. The areas of improvements are (Figure 18):

- √ C11: Points of entry (PoE) – 30%

- ✓ C10: Risk Communication – 40%
- ✓ C1: Legislation and financing – 53%
- ✓ C2: IHR Coordination & NFP Functions – 60%
- ✓ C4: Food Safety – 60%
- ✓ C6: Surveillance – 60%
- ✓ C12: Chemical events – 60%

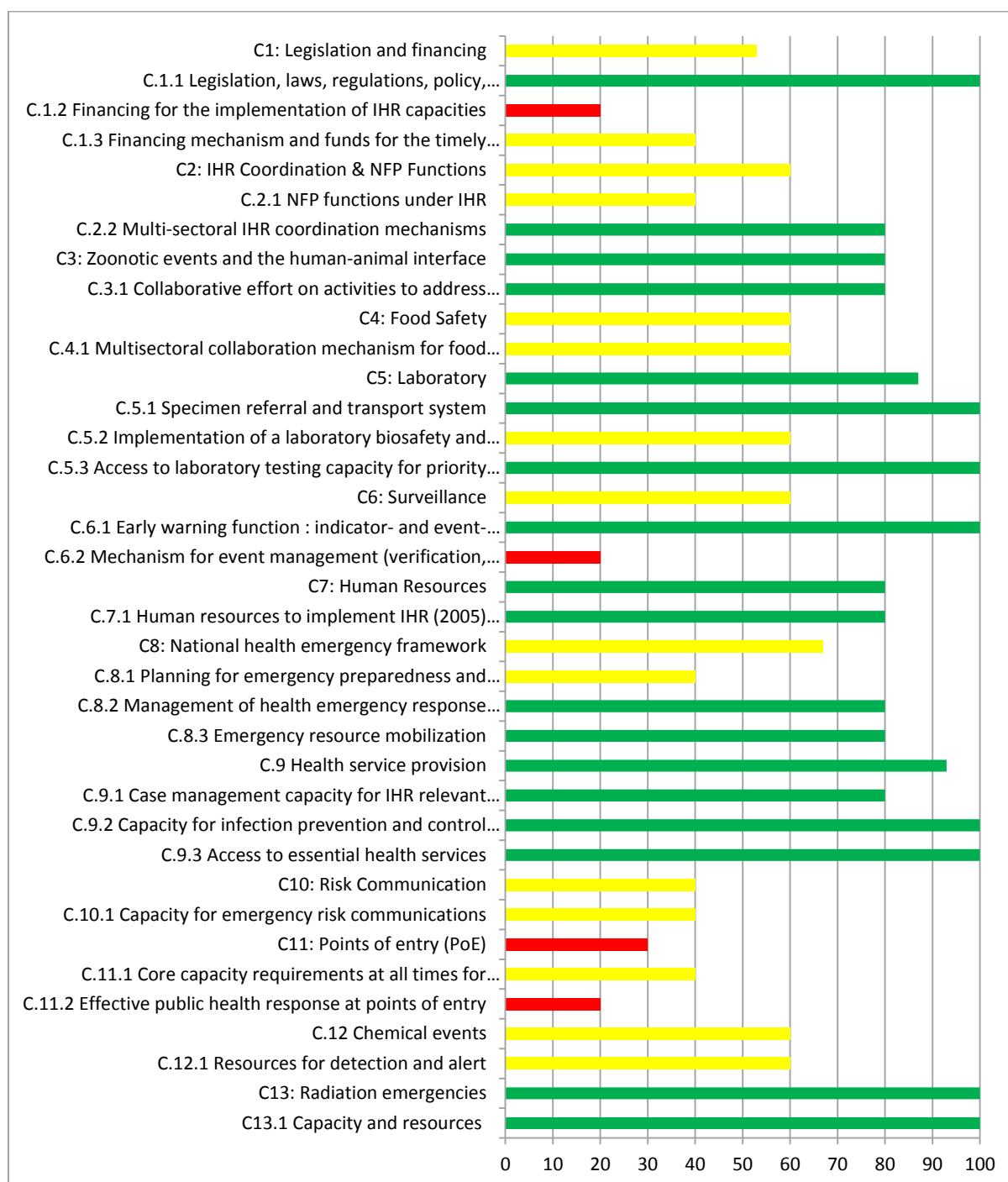
Figure 18. IHR capacities in Czech Republic



Source of data: IHR SPAR Reports, 2019.

Estonia

Figure 19. IHR capacities in Estonia



Source of data: IHR SPAR Reports, 2019.

Estonian IHR capacity, in general, had a value of 67%. The areas with lowest capacities are (Figure 19):

- √ C11: Points of entry (PoE) – 30%
- √ C10: Risk Communication – 40%
- √ C1: Legislation and financing – 53%
- √ C2: IHR Coordination & NFP Functions – 60%
- √ C4: Food Safety – 60%
- √ C6: Surveillance – 60%
- √ C12: Chemical events – 60%
- √ C8: National health emergency framework – 67%

Greece

The overall IHR capacity in Greece is 57% and the areas with lowest capacities and greatest need for improvement are (Figure 20):

- √ C10: Risk Communication – 20%
- √ C13: Radiation emergencies – 40%
- √ C2: IHR Coordination & NFP Functions – 50%
- √ C11: Points of entry (PoE) – 50%
- √ C1: Legislation and financing – 60%
- √ C3: Zoonotic events and the human-animal interface – 60%
- √ C5: Laboratory – 60%
- √ C8: National health emergency framework – 60%
- √ C12: Chemical events – 60%
- √ C.9 Health service provision – 67%

Figure 20. IHR capacities in Greece



Source of data: IHR SPAR Reports, 2019.

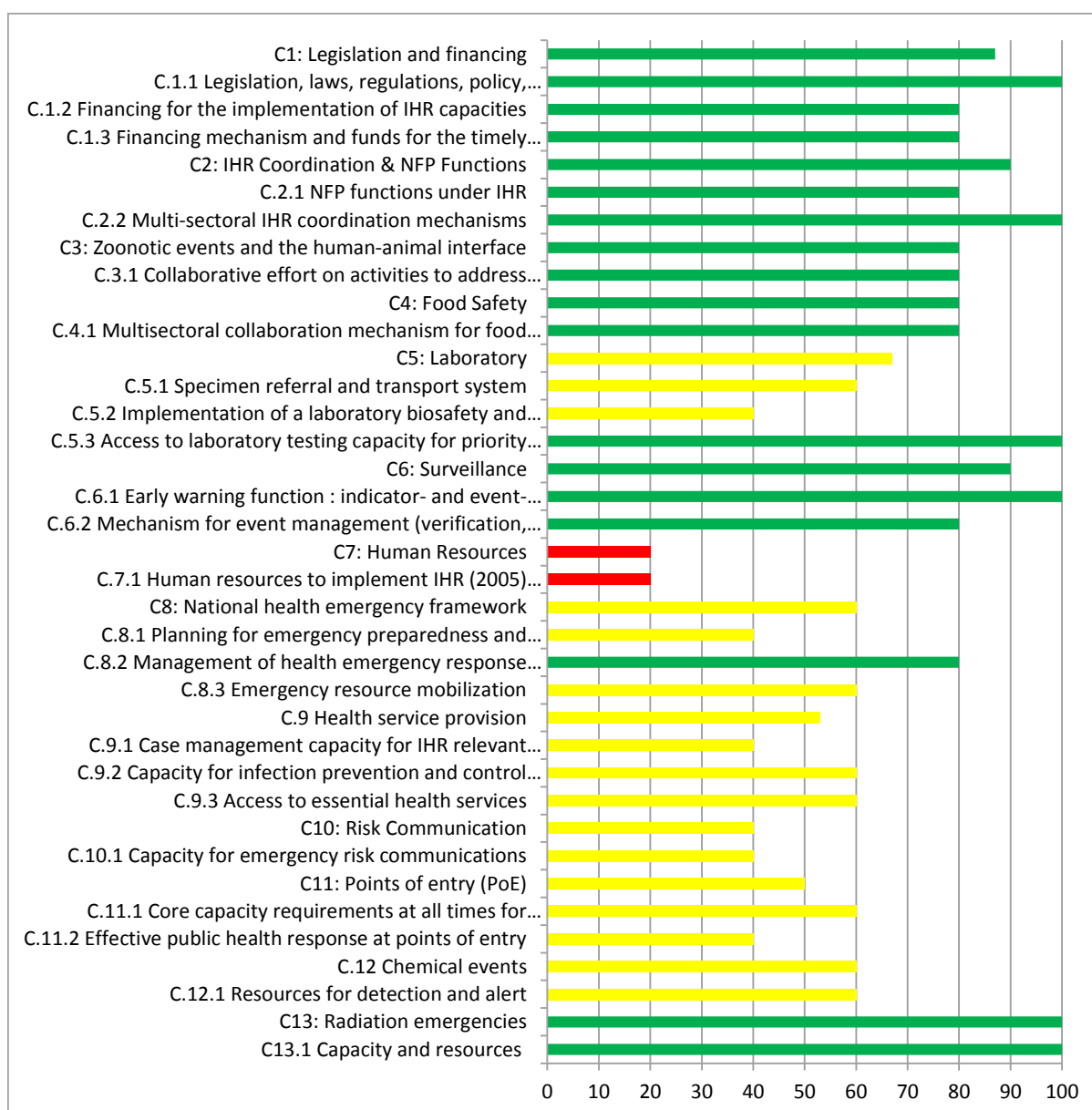
Hungary

Hungary is a country with overall IHR capacity of 67%. The areas of improvements are (Figure 21):

- √ C7: Human Resources – 20%
- √ C10: Risk Communication – 40%

- ✓ C11: Points of entry (PoE) – 50%
- ✓ C9: Health service provision – 53%
- ✓ C8: National health emergency framework – 60%
- ✓ C12: Chemical events – 60%
- ✓ C5: Laboratory – 67%

Figure 21. IHR capacities in Hungary



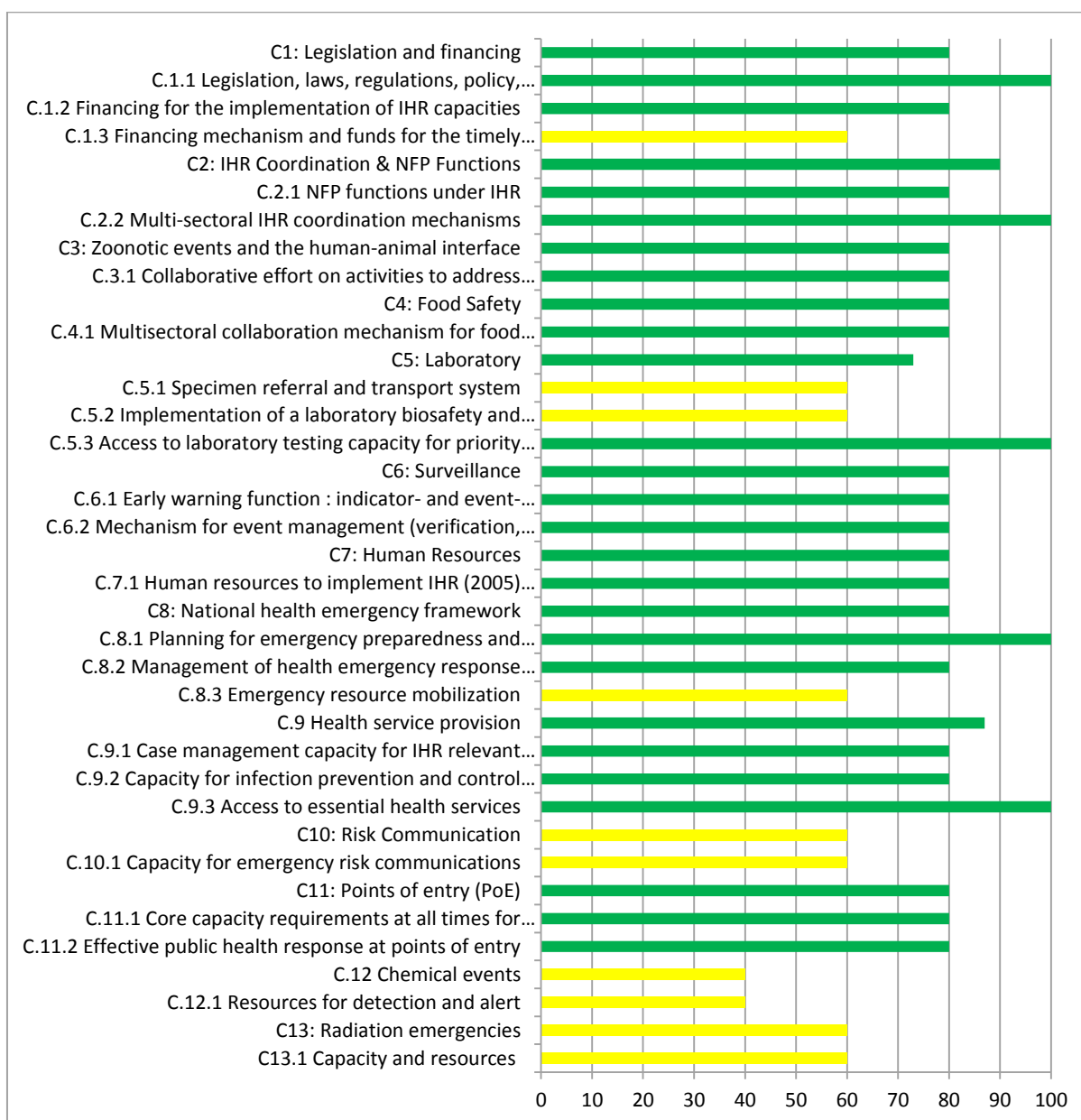
Source of data: IHR SPAR Reports, 2019.

Latvia

The overall IHR capacity in Latvia is 75% and the needs for improvement are reported in following areas (Figure 22):

- ✓ C12: Chemical events – 40%
- ✓ C10: Risk Communication – 60%
- ✓ C13: Radiation emergencies – 60%

Figure 22. IHR capacities in Latvia



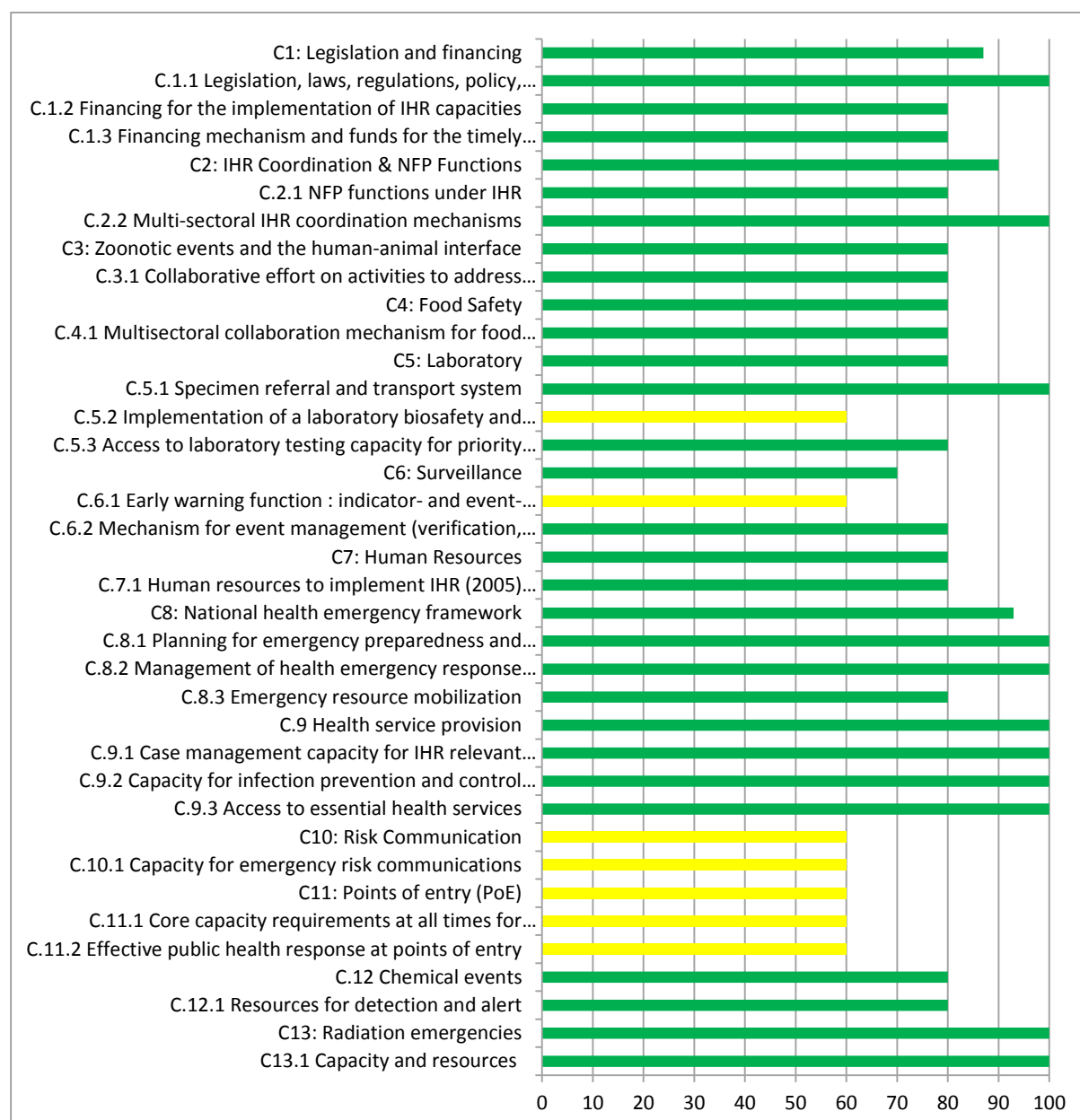
Source of data: IHR SPAR Reports, 2019.

Lithuania

Lithuania has average IHR score of 82%. The areas for improvement are:

- ✓ C10: Risk Communication – 60%
- ✓ C11: Points of entry (PoE) – 60%
- ✓ C6: Surveillance – 70%

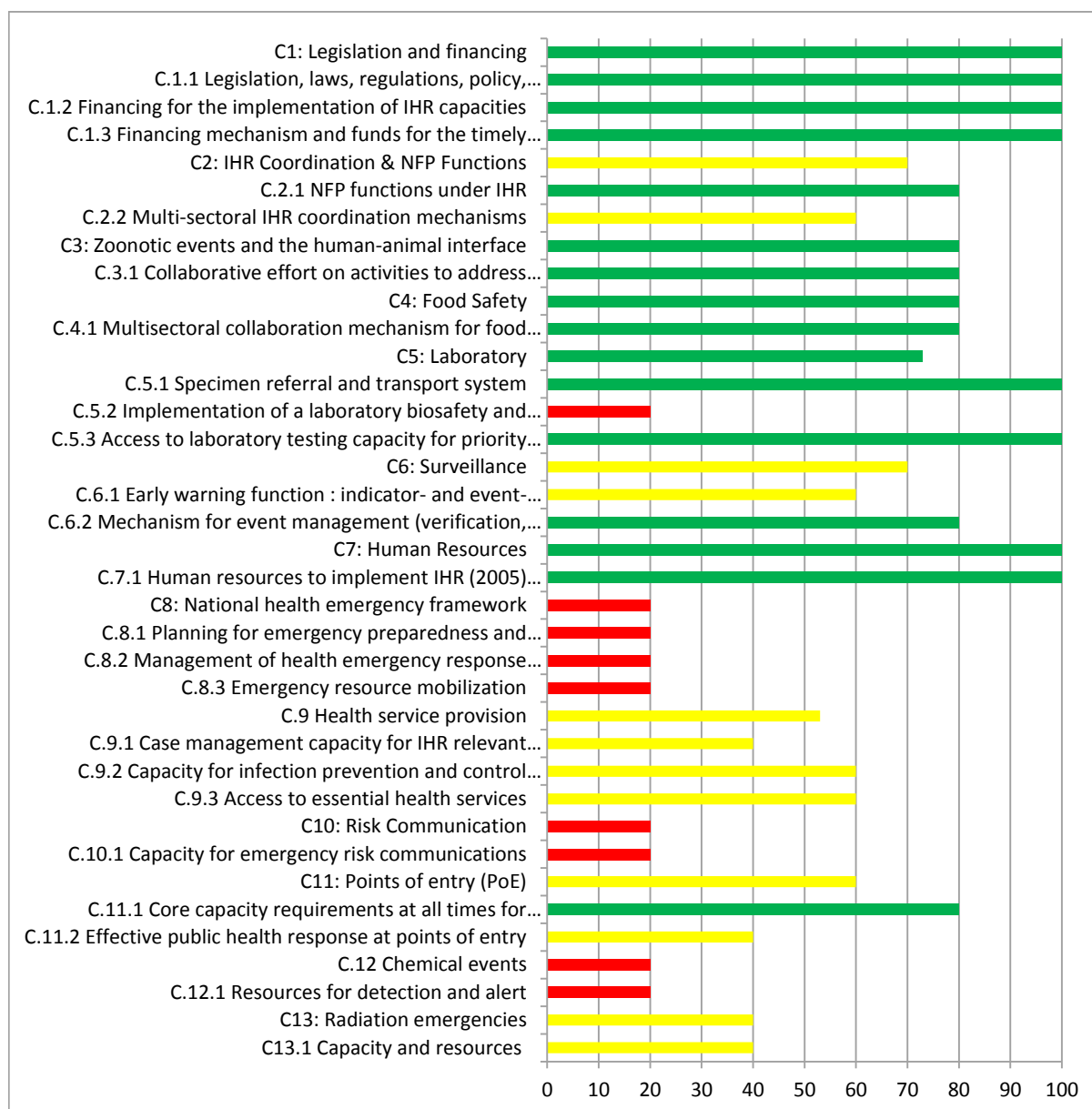
Figure 23. IHR capacities in Lithuania



Source of data: IHR SPAR Reports, 2019.

Malta

Figure 24. IHR capacities in Malta



Source of data: IHR SPAR Reports, 2019.

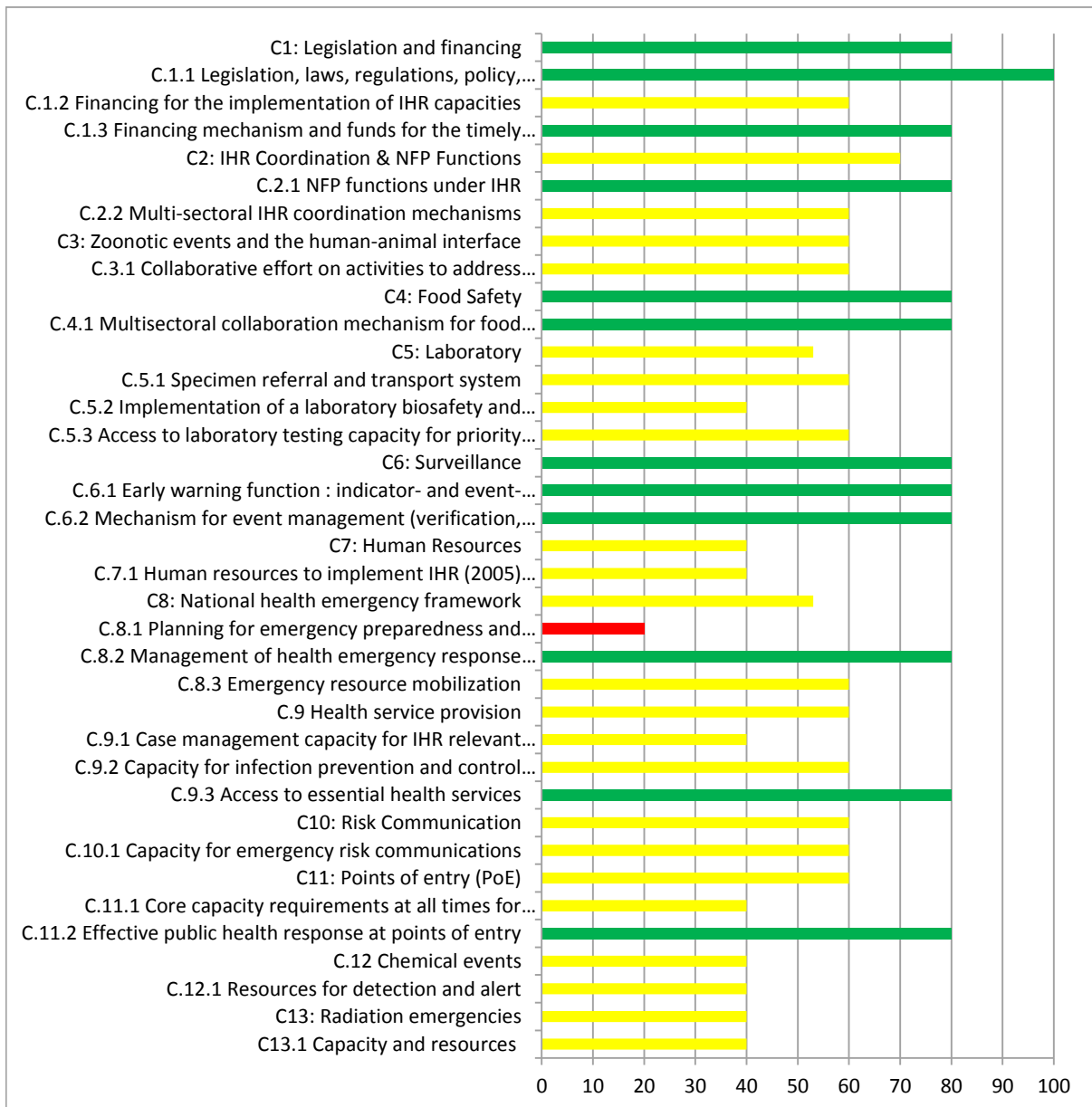
Malta has the overall IHR capacity of 60%. The lowest capacities are reported in the following areas (Figure 24):

- ✓ C8: National health emergency framework – 20%
- ✓ C10: Risk Communication – 20%
- ✓ C12: Chemical events – 20%

- √ C13: Radiation emergencies – 40%
- √ C9: Health service provision – 53%
- √ C11: Points of entry (PoE) – 60%

Moldova

Figure 25. IHR capacities in Moldova



Source of data: IHR SPAR Reports, 2019.

The overall IHR capacity in Moldova is 60% and the areas with lowest capacities and greatest need for improvement are (Figure 25):

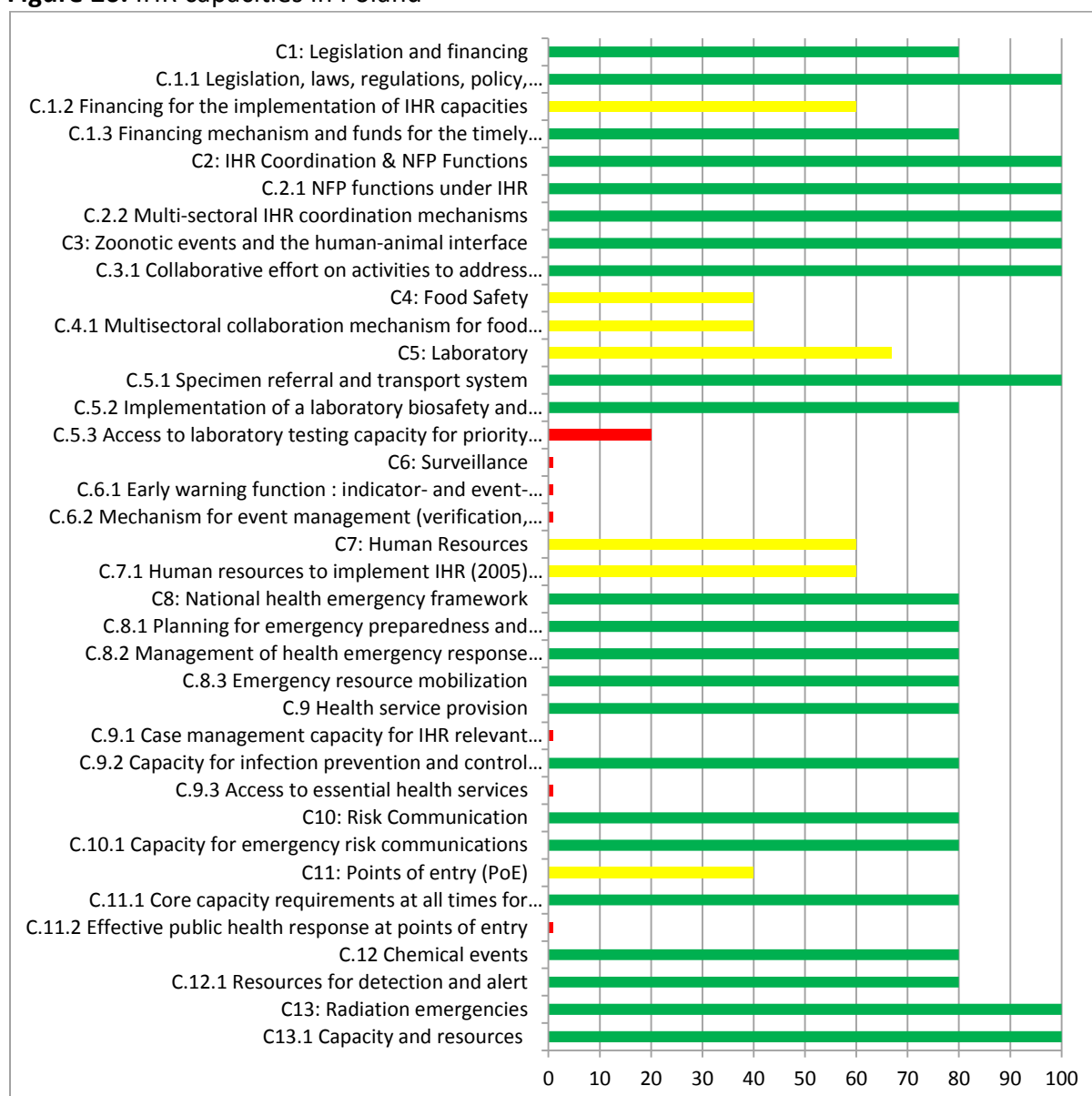
- √ C7: Human Resources – 40%
- √ C12: Chemical events – 40%
- √ C13: Radiation emergencies – 40%
- √ C5: Laboratory – 53%
- √ C8: National health emergency framework – 53%
- √ C10: Risk Communication – 53%
- √ C11: Points of entry (PoE) – 60%
- √ C2: IHR Coordination & NFP Functions – 70%

Poland

Poland is a country with average IHR capacity of 70%. The lowest capacities are registered in following areas (Figure 26):

- √ C6: Surveillance – 0%
- √ C11: Points of entry (PoE) – 40%
- √ C4: Food Safety – 40%
- √ C7: Human Resources – 60%
- √ C5: Laboratory – 67%

Figure 26. IHR capacities in Poland



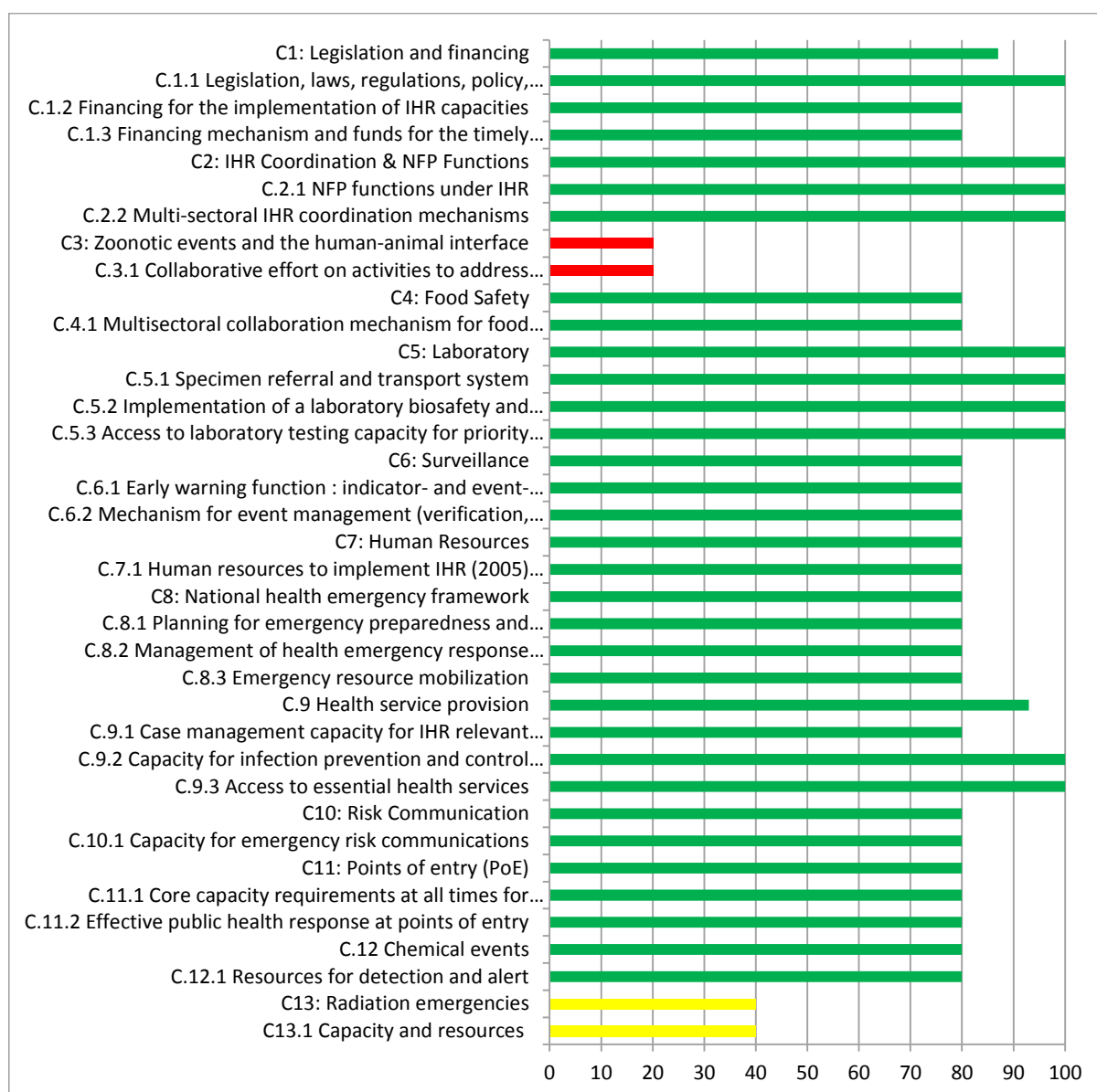
Source of data: IHR SPAR Reports, 2019.

Portugal

Portugal has overall IHR capacity of 77%. The main areas for improvement are (Figure 27):

- √ C3: Zoonotic events and the human-animal interface – 20%
- √ C13: Radiation emergencies – 40%

Figure 27. IHR capacities in Portugal



Source of data: IHR SPAR Reports, 2019.

Serbia

Serbia, with overall IHR capacity of 69%, has reported following areas (Figure 28) with the need for improvement:

- ✓ C11: Points of entry (PoE) – 0%
- ✓ C5: Laboratory – 53%
- ✓ C6: Surveillance – 60%
- ✓ C13: Radiation emergencies – 60%

Figure 28. IHR capacities in Serbia



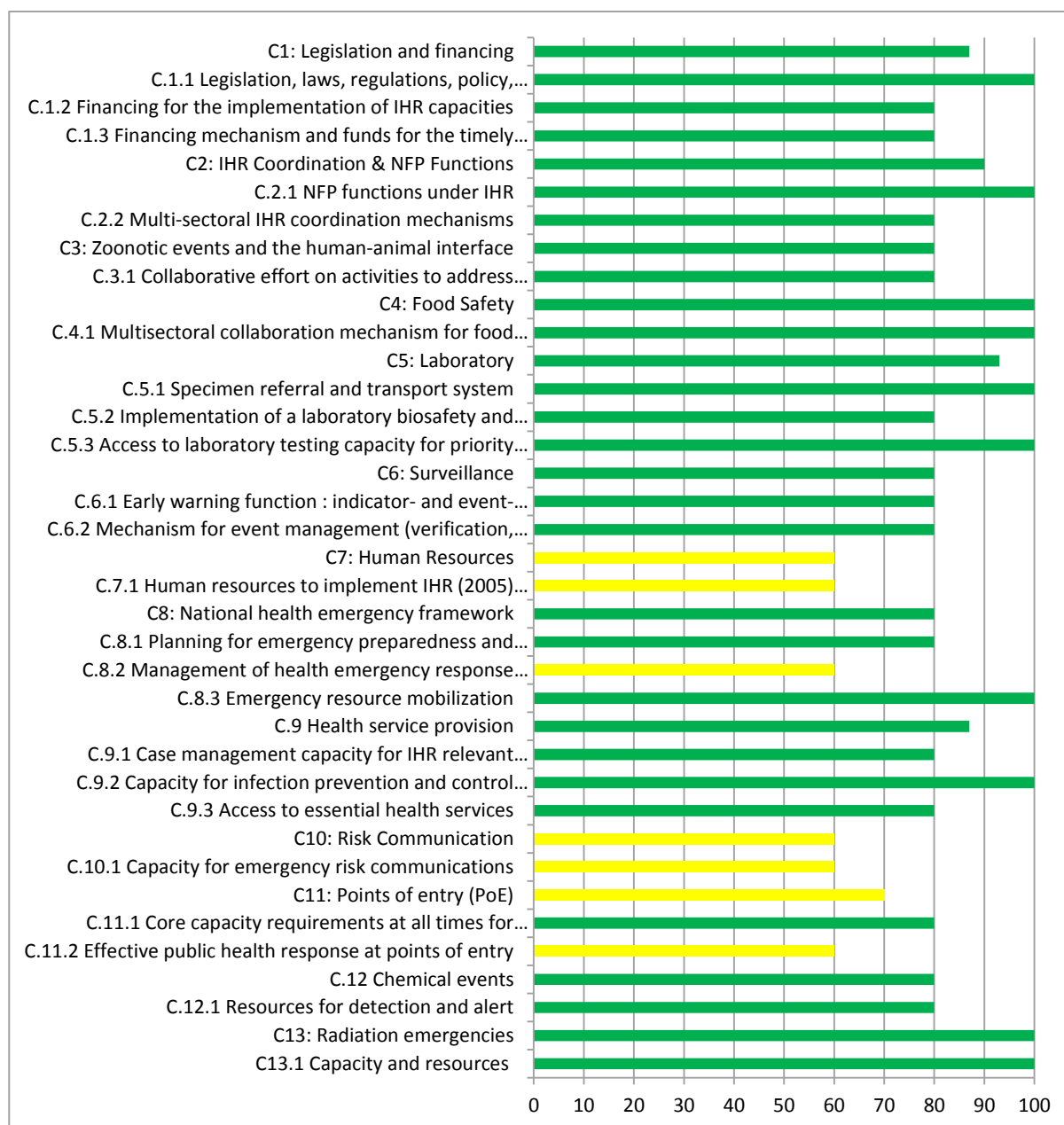
Source of data: IHR SPAR Reports, 2019.

Slovenia

The overall IHR capacity in Slovenia is 82%, and Report shows the major area for improvement (Figure 29):

- √ C7: Human Resources – 60%
- √ C10: Risk Communication – 60%
- √ C11: Points of entry (PoE) – 70%

Figure 29. IHR capacities in Slovenia



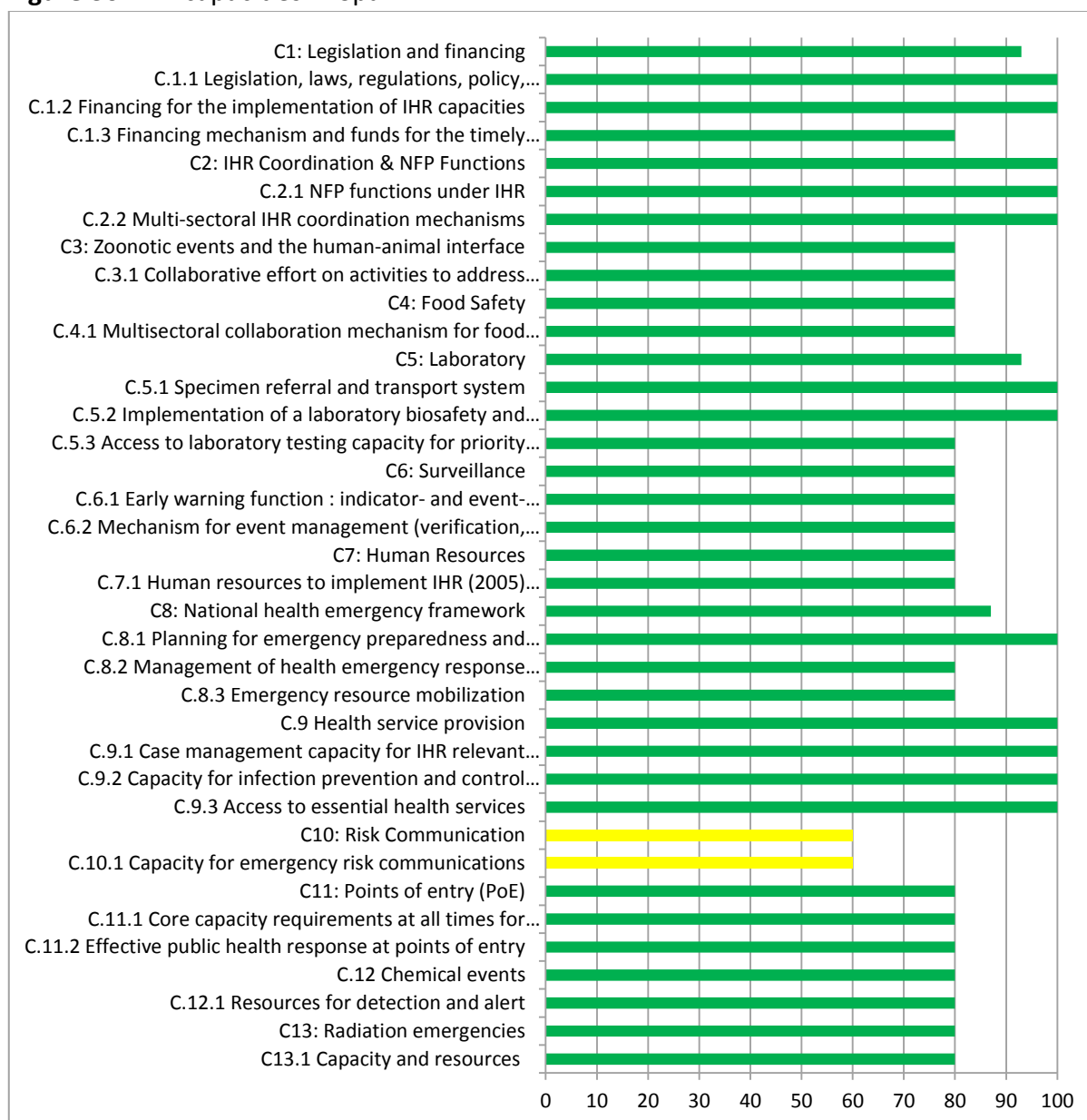
Source of data: IHR SPAR Reports, 2019.

Spain

Spain is a country with average IHR capacities of 84%, and main area for improvement (Figure 30) is

- √ C10: Risk Communication – 60%

Figure 30. IHR capacities in Spain



Source of data: IHR SPAR Reports, 2019.

Austria

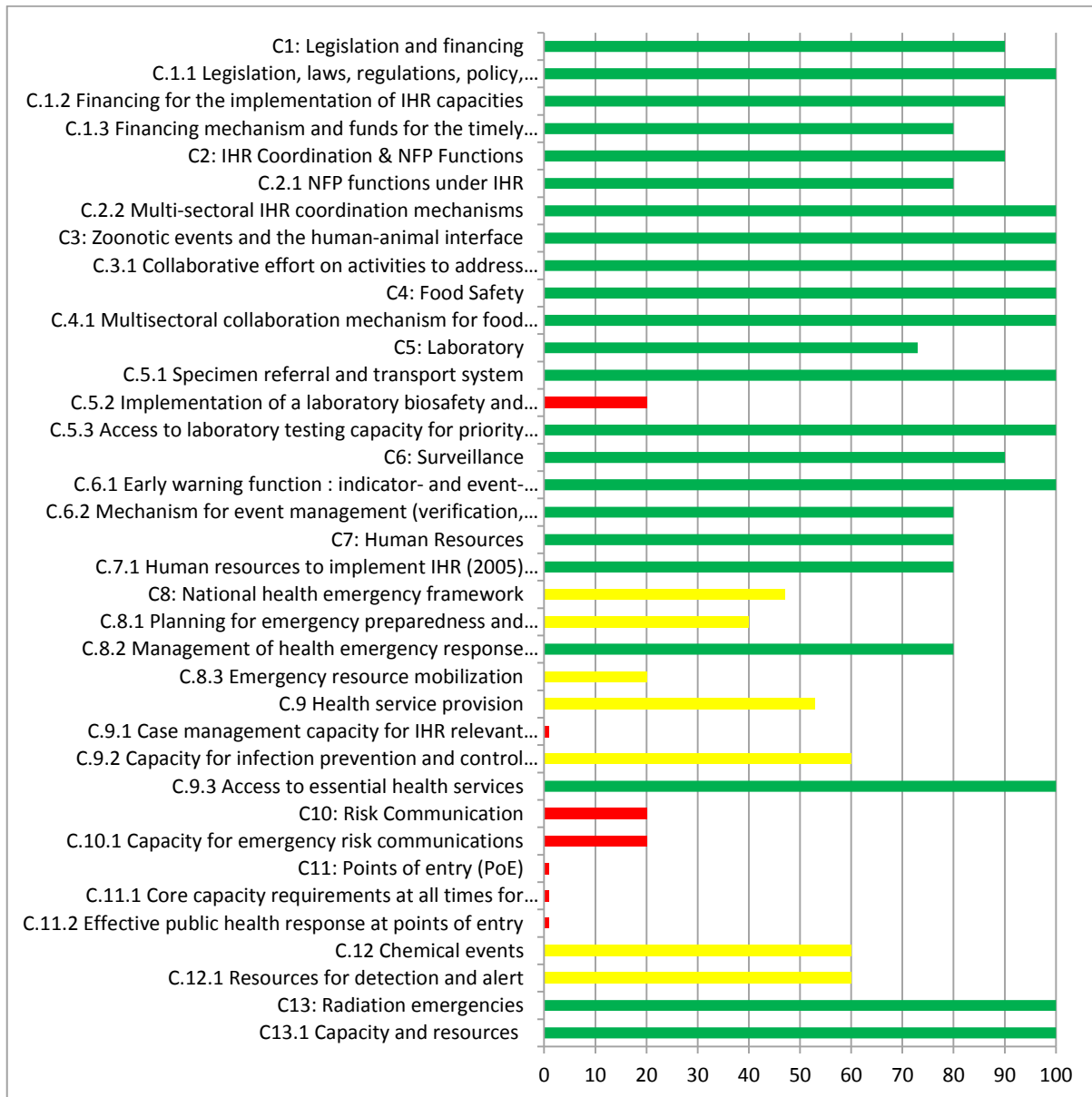
The overall IHR capacity in Austria is 69% and the needs for improvement are reported in following areas (Figure 31):

- √ C11: Points of entry (PoE) – 0%
- √ C10: Risk Communication – 20%
- √ C8: National health emergency framework – 47%

✓ C9: Health service provision – 53%

✓ C12: Chemical events – 60%

Figure 31. IHR capacities in Austria



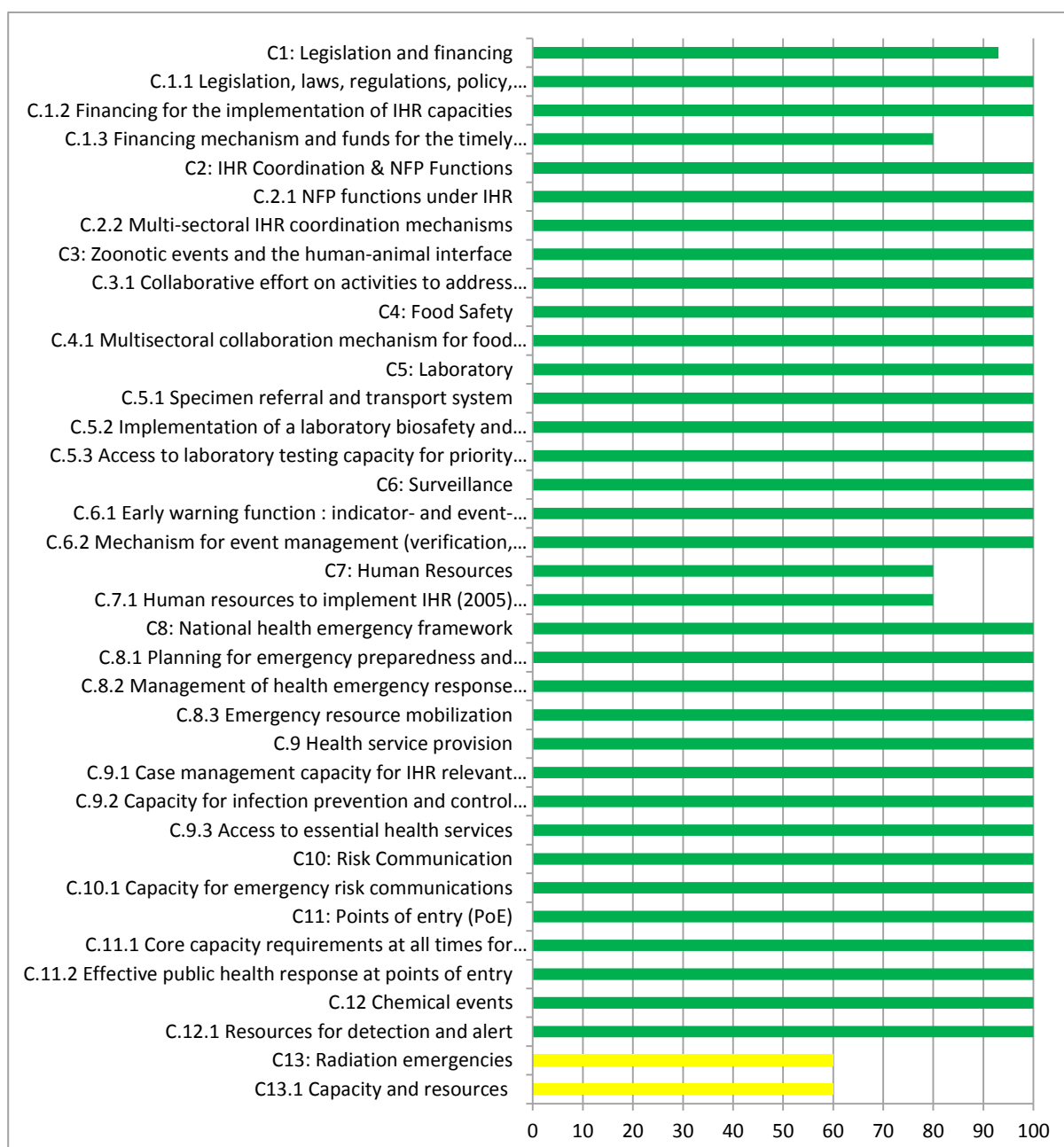
Source of data: IHR SPAR Reports, 2019.

Denmark

Denmark is a country with an average IHR capacity of 95%, and main area for improvement (Figure 32) is

- √ C13: Radiation emergencies – 60%

Figure 32. IHR capacities in Denmark



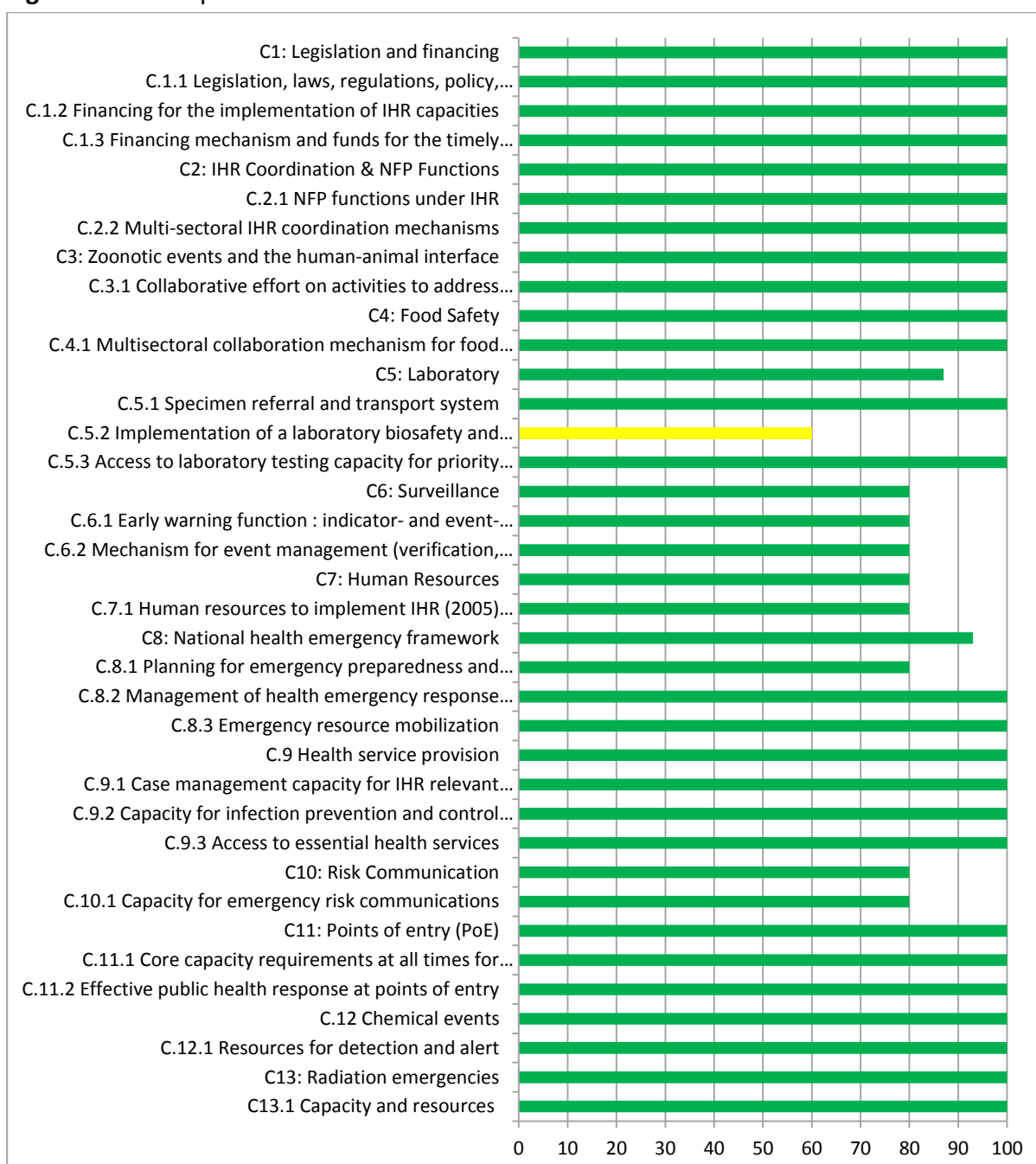
Source of data: IHR SPAR Reports, 2019.

Finland

With the overall IHR capacity of 94% in Finland there is no area with less than 80% of achieved capacity, and only one indicator has the capacity lower than 80% (Figure 33):

- √ C.5.2 Implementation of a laboratory biosafety and biosecurity regime – 60%

Figure 33. IHR capacities in Finland



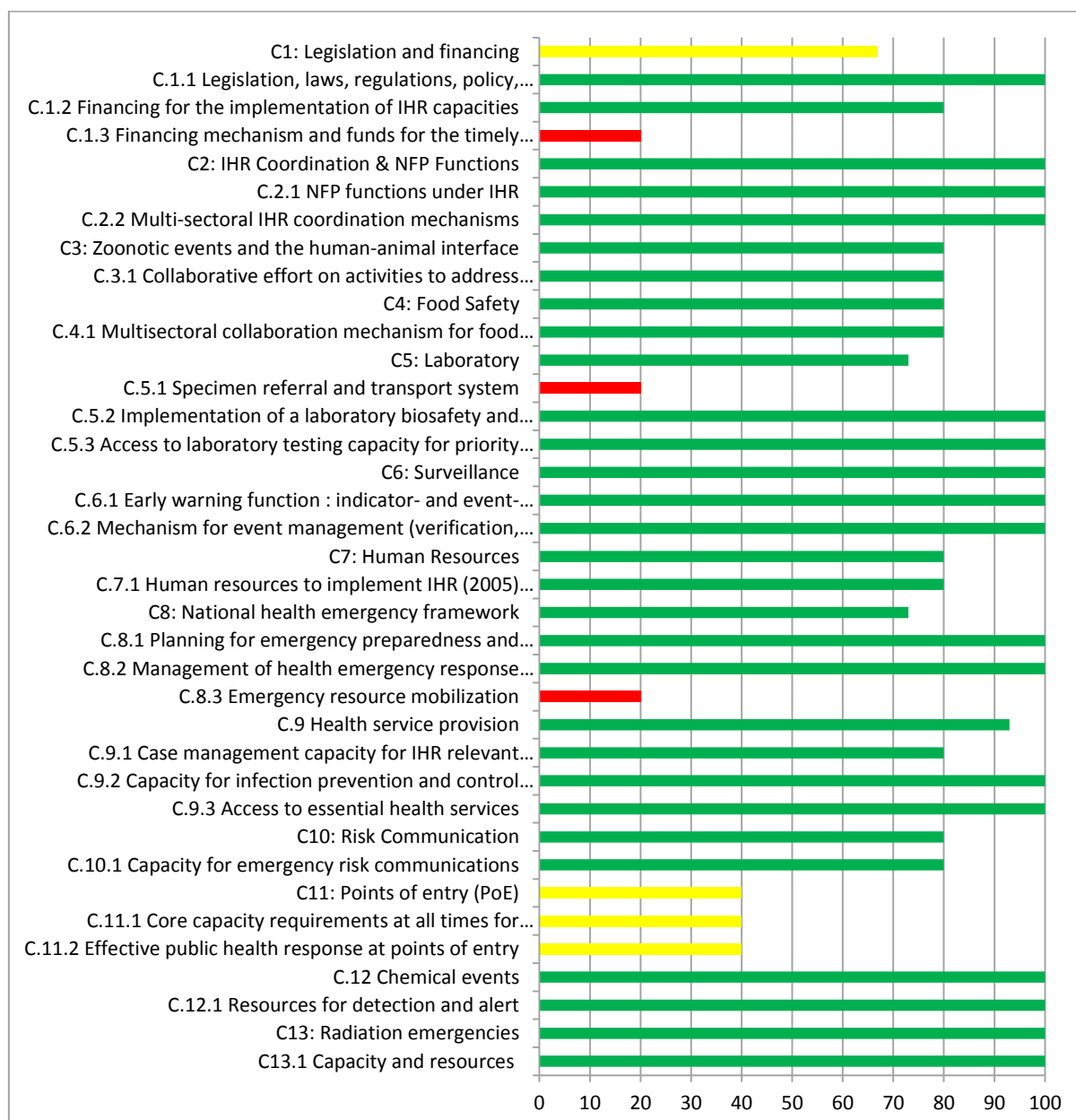
Source of data: IHR SPAR Reports, 2019.

France

France has the overall IHR capacity of 82%. The lowest capacities are reported in the following areas (Figure 34):

- √ C11: Points of entry (PoE) – 40%
- √ C1: Legislation and financing – 67%

Figure 34. IHR capacities in France



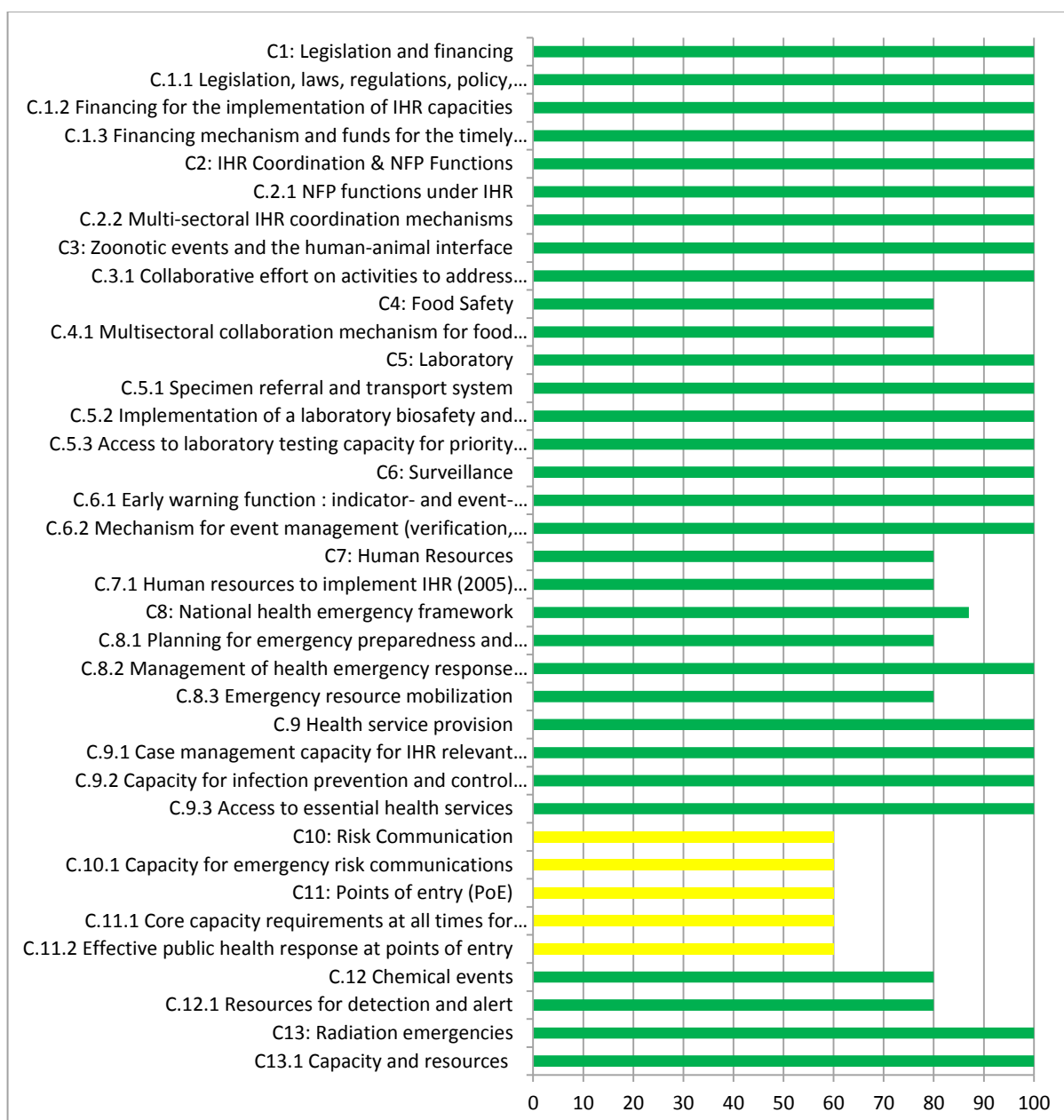
Source of data: IHR SPAR Reports, 2019.

Germany

Germany has overall IHR capacity of 88%. The main areas for improvement are (Figure 35):

- √ C10: Risk Communication – 60%
- √ C11: Points of entry (PoE) – 60%

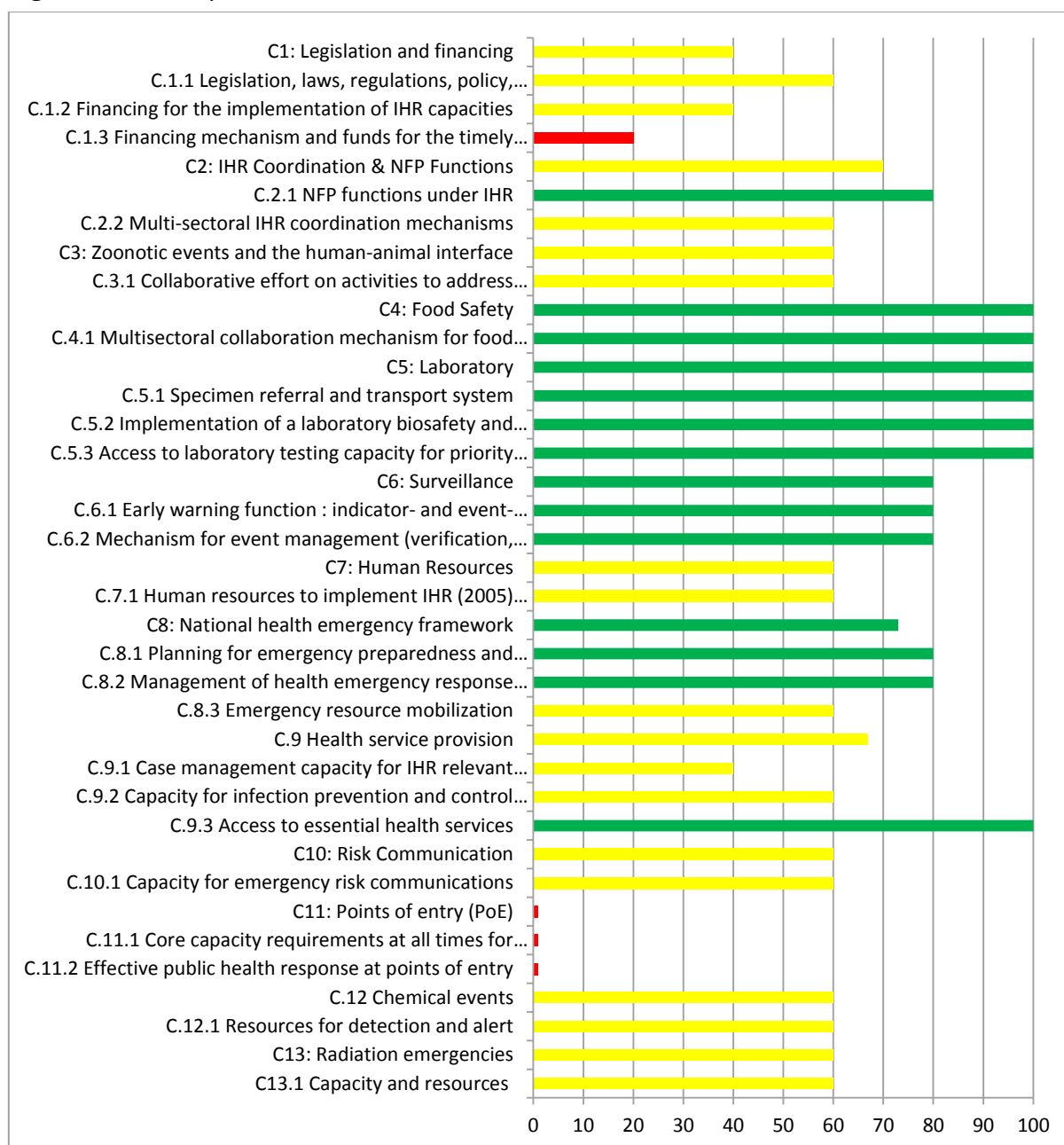
Figure 35. IHR capacities in Germany



Source of data: IHR SPAR Reports, 2019.

Ireland

Figure 36. IHR capacities in Ireland



Source of data: IHR SPAR Reports, 2019.

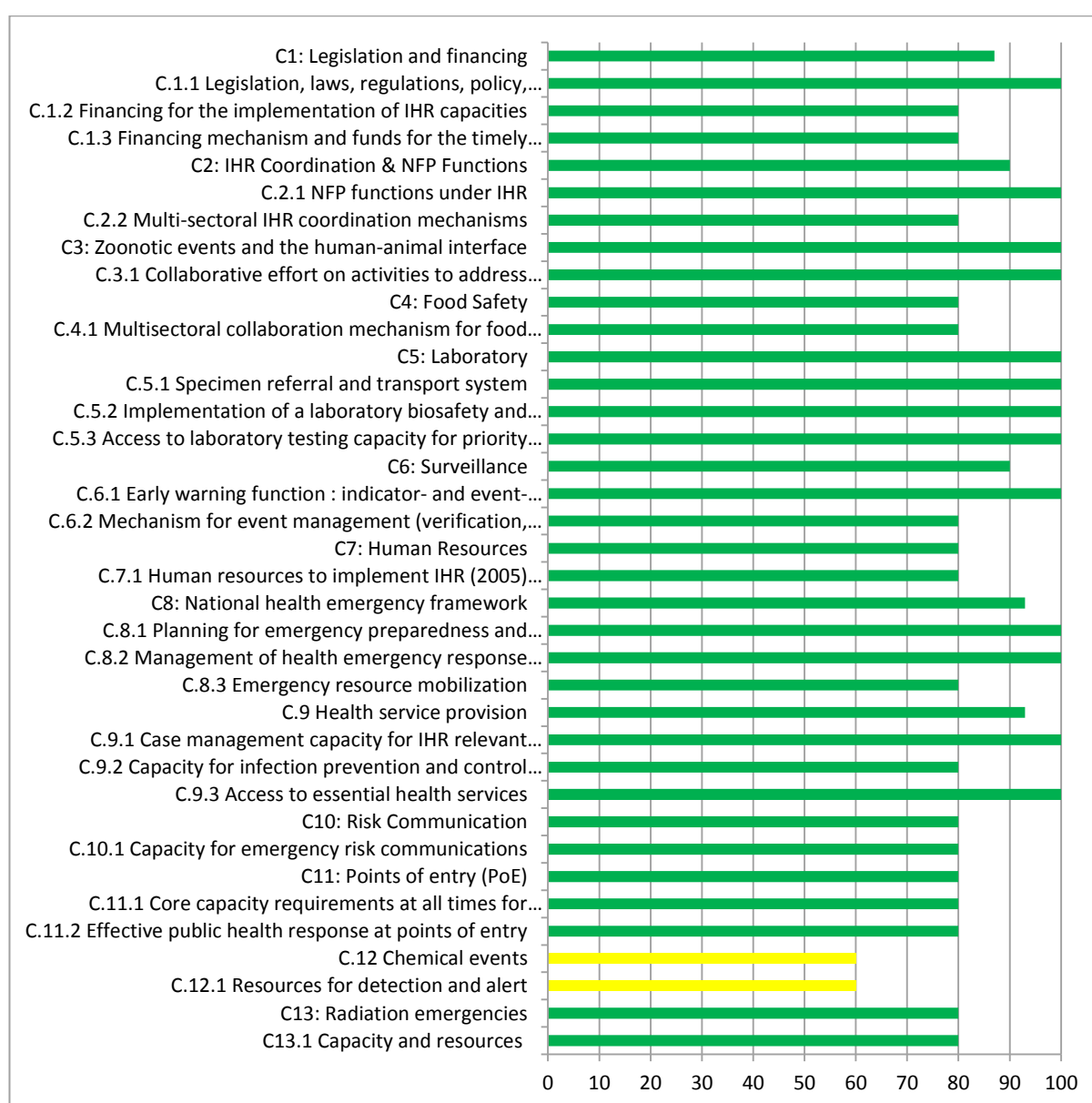
The overall IHR capacity in Ireland is 64% and the needs for improvement are highest in following areas (Figure 36):

- √ C11: Points of entry (PoE) – 0%
- √ C1: Legislation and financing – 40%
- √ C3: Zoonotic events and the human-animal interface – 60%

- ✓ C7: Human Resources – 60%
- ✓ C10: Risk Communication – 60%
- ✓ C12: Chemical events – 60%
- ✓ C13: Radiation emergencies – 60%
- ✓ C9: Health service provision – 60%
- ✓ C2: IHR Coordination & NFP Functions – 70%

Italy

Figure 37. IHR capacities in Italy



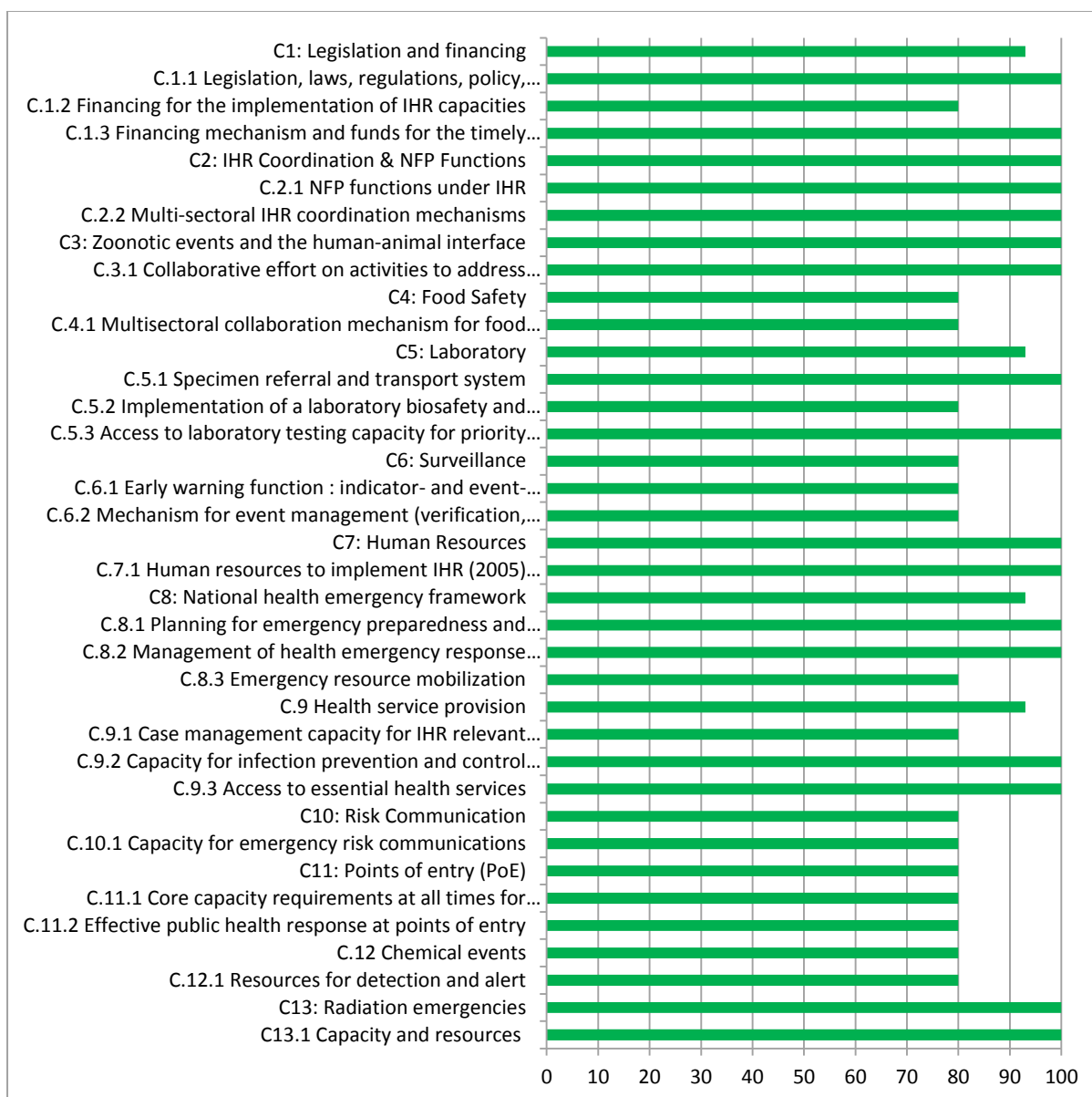
Source of data: IHR SPAR Reports, 2019.

Italy is a country with an average IHR capacity of 86%, and main area for improvement (Figure 32) is

- √ C12: Chemical events – 60%

Netherlands

Figure 38. IHR capacities in Netherlands



Source of data: IHR SPAR Reports, 2019.

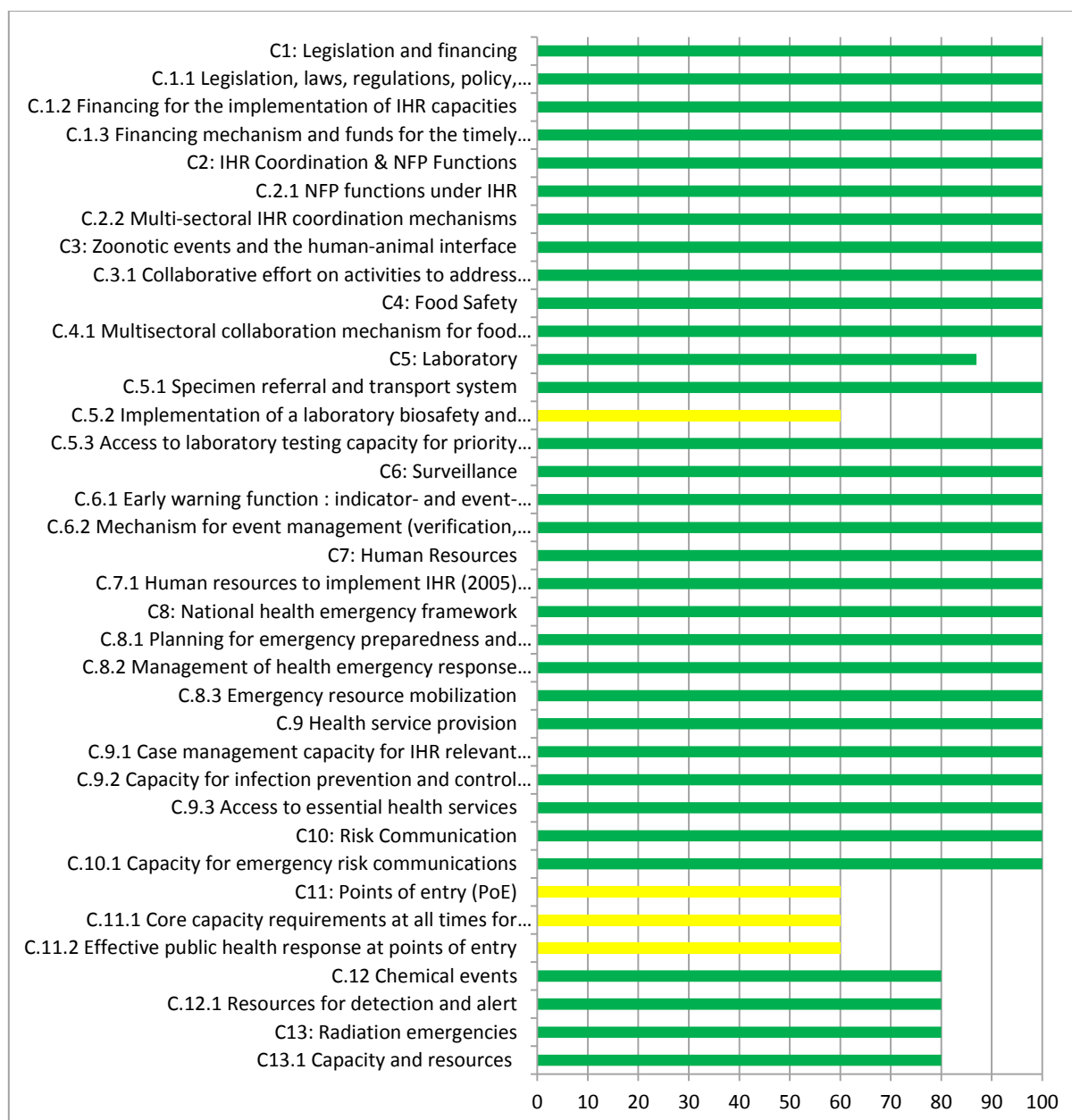
With the overall IHR capacity of 90% in Netherlands there is no area with less than 80% of achieved capacity (Figure 38).

Norway

Norway is a country with an average IHR capacity of 93%, and main area for improvement (Figure 39) is

- √ C11: Points of entry (PoE) – 60%

Figure 39. IHR capacities in Norway

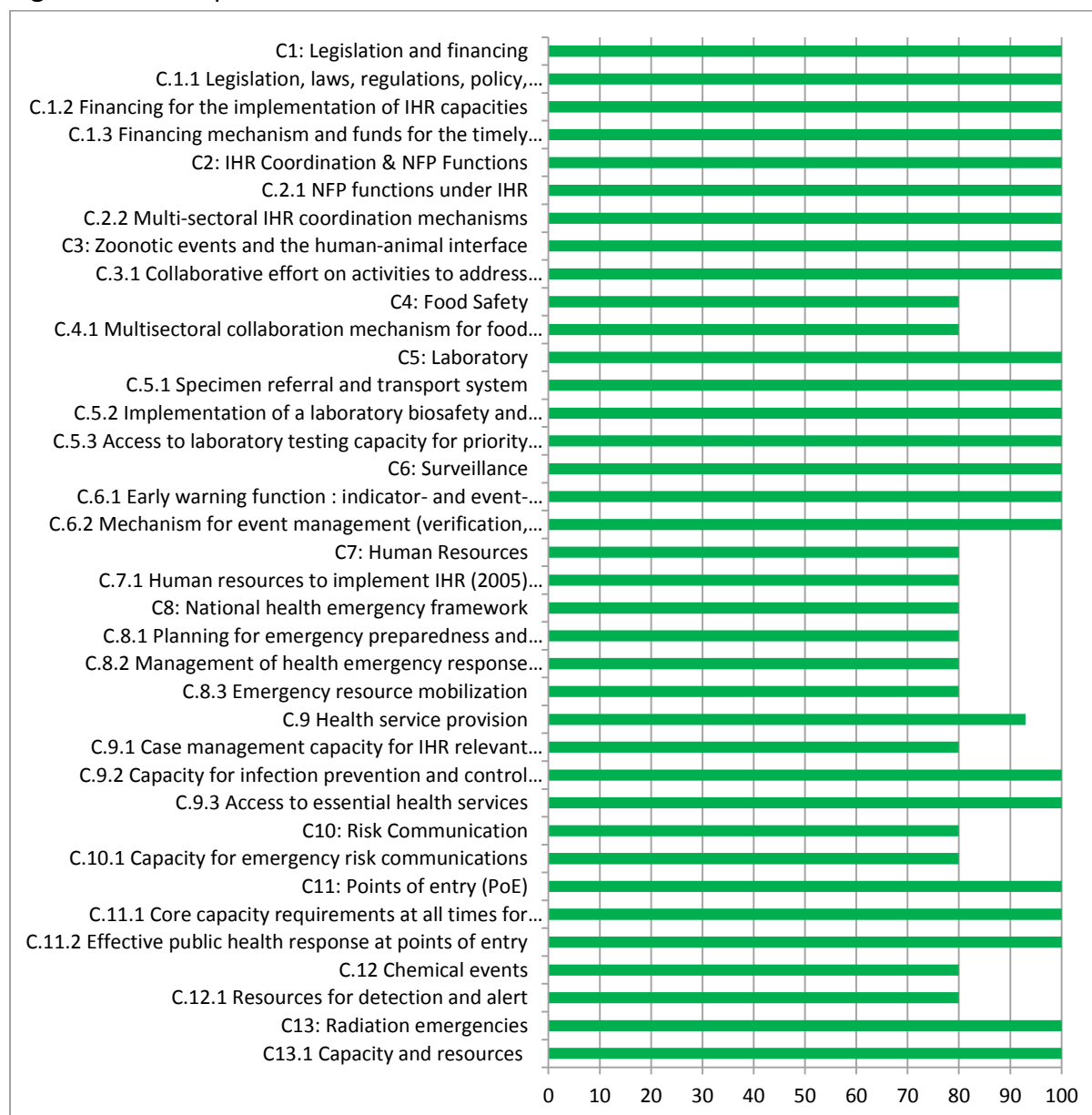


Source of data: IHR SPAR Reports, 2019.

Sweden

With the overall IHR capacity of 90% in Sweden there is no area with less than 80% of achieved capacity (Figure 40).

Figure 40. IHR capacities in Sweden



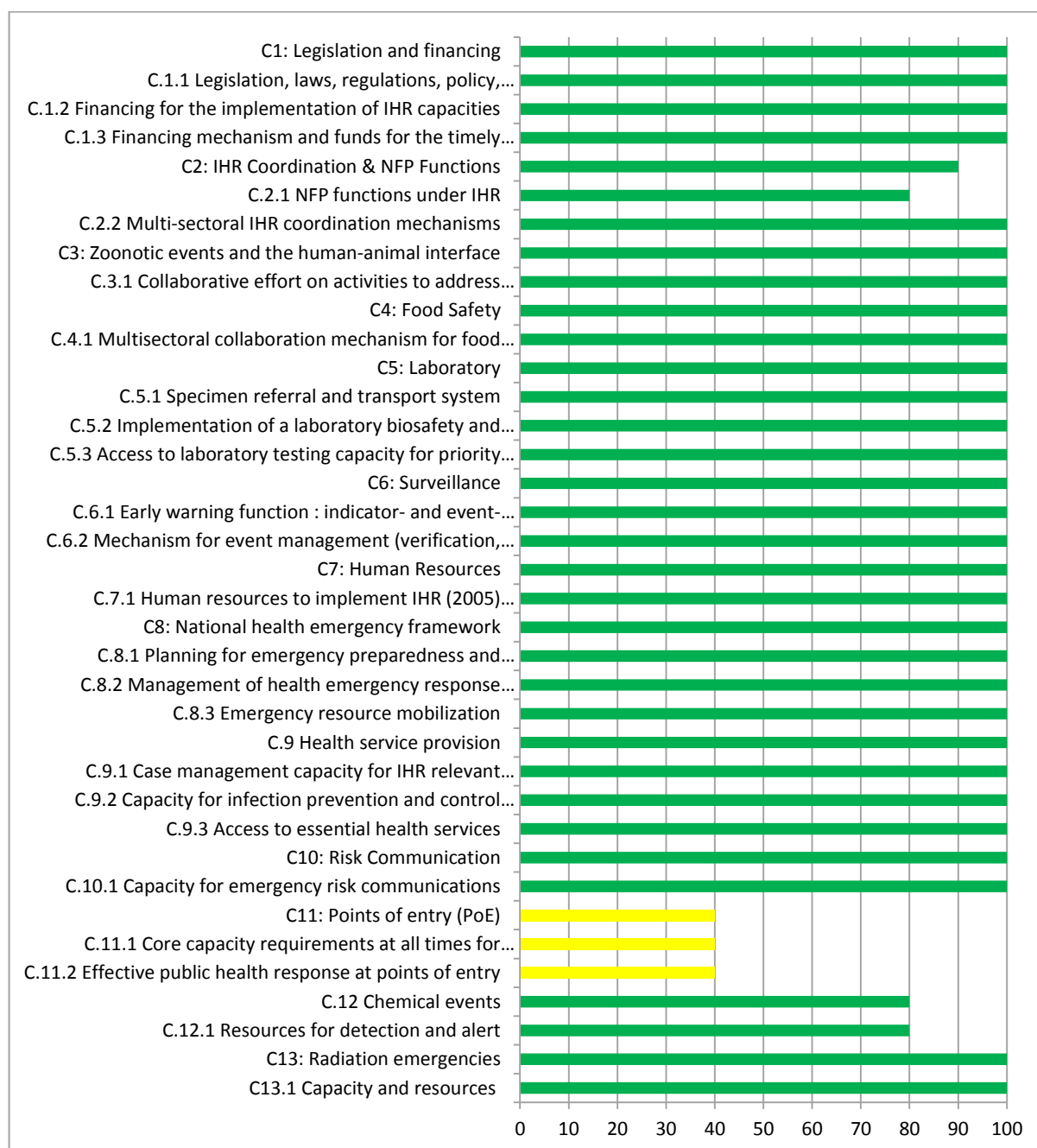
Source of data: IHR SPAR Reports, 2019.

UK

UK is a country with an average IHR capacity of 93%, and main area for improvement (Figure 41) is

- √ C11: Points of entry (PoE) – 40%

Figure 41. IHR capacities in UK



Source of data: IHR SPAR Reports, 2019.

4. Conclusion

The training needs assessment is a crucial prerequisite to design, develop and implement training programmes. The results of analysis, comparison and integration of data obtained from relevant sources identified the areas with the needs for development and/or improvement:

- Points of entry
- Risk Communication
- Chemical events
- Biosafety and biosecurity
- National health emergency framework
- Surveillance
- Human Resources
- Preparedness and response
- Risk assessment
- Antimicrobial resistance
- Case management capacity for IHR relevant hazards
- Pathogen genomics/whole genome sequencing use for outbreak investigations

Additional areas with a training need are recognised in:

Central Europe

- Food Safety

Southern Europe

- Radiation emergencies
- Zoonotic events and the human-animal interface

Balkan countries

- Zoonotic events and the human-animal interface
- Health service provision
- Laboratory
- IHR Coordination & NFP Functions

5. References

1. World Health Organisation. International Health Regulations (2005). WHA 58.3.2005.
2. Decision No 1082/2013/EU of the European Parliament and of the Council on 22 October 2013 on serious cross-border threats to health and repealing Decision No 2119/98/EC. Official Journal of the European Union. L293/1. 5.11.2013.
3. ECDC capacity and training needs assessment 2018. Report on 2018 survey. ECDC. 4. September 2020.
4. Joint External Evaluation tool. Second edition. International Health Regulations (2005). WHO. 2018.
5. International Health Regulations (2005). State Party self-assessment Annual Reporting tool. WHO. 2018
6. European Commission DG Santé, ECDC. Draft Progress Report on Preparedness and Response Planning for the Health Security Committee (Article 4 of Decision 1082/2013/ EU on serious cross-border threats to health). Luxembourg. European Commission. 2018.
7. WHO European Region: JEE mission reports. Available at <https://www.who.int/ihr/procedures/mission-reports-europe/en/>
8. Third Health Programme countries gross national income. Available at https://ec.europa.eu/chafea/health/funding/joint-actions/documents/gni-ja-2019_en.pdf
9. The Global Health Observatory. World Health Data Platform. Indicators. Available at <https://www.who.int/data/gho/data/indicators>