Study on Cross-Border Cooperation

Capitalising on existing initiatives for cooperation in cross-border regions

Cross-border.Care

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Final report

Annexes

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Table of Contents

Tables

Figures

Annex I: Healthcare system vulnerabilities to fraud – the cases of Belgium, France, the Netherlands and Spain

Belgium: Funding of healthcare is through compulsory income-based social security contributions that are paid by both the employer and employee, as well as through out-of-pocket payments and additional private insurance. Healthcare is delivered by independent healthcare providers, who are principally paid via fee-for-service payments. Hospital wards, including emergency services, are financed via fixed prospective budget system based on DRGs. Medical and medico-technical services (e.g. laboratories) are remunerated via a fee-for service system to the provider [171, 174]. In 2009, 1075 cases of suspected healthcare fraud were identified in the EHFCN survey in Belgium. The overall estimated losses due to healthcare fraud in the country accounted for €1664 million [16]. Data showed that the most common fraud type, which impacted the Belgian National Institute for Health and Disability Insurance (INAMI/RIZIV), was up-coding [19]. Several other publications provide evidence on inappropriate healthcare billing in Belgium, such as miscoding and misspecification of diagnoses by physicians [175]. In addition, Belgian healthcare providers have the freedom to charge a fee on top of the convention tariff, called supplements (extra billing), which fee is paid by the patient [174, 176]. As suggested by Lecluyse et al. (2009), this practice can be linked to inappropriate billing since questionable price setting was detected related to the supplements set by providers [176]. Inappropriate healthcare is also reported, for example in relation to overprovision of care in intensive care units [177], too short hospital stays that reduce the quality of care [171], as well as problematic providers' attitude [178].

France: The healthcare system is organized around a mix of public and private insurers and providers. Private and fee-for-service physicians are responsible for the supply of care. Funding comes from three sources: first, from statutory social insurance contributions shared between employers and employees (about 75%); second, from Voluntary Health Insurance contributions (about 12%); and third, from direct payments by patients (about 11%). Since 2004, physicians in the hospital acute care are paid using a type of DRG payment method. General Practitioners (GPs) are offered additional payment on top of their general fee-for-service income [179]. In France, potential losses due to healthcare fraud were estimated to be up to €10576 million in 2008 [16]. The most common fraud type that impacted the French National Health Insurance Fund for Salaried Worker (CNAMTS), is inappropriate billing such as up-coding and billing more expensive services. It is suggested that healthcare providers are the main actors who conduct healthcare fraud in France [19]. The French DRG (diagnosis related groups) payment method involves the use of standardised discharge summaries. Thus, reimbursement of hospitals is based on patients' diagnosis as coded at discharge, which is performed by the physician. In this matter, inappropriate billing (i.e. inappropriate coding) can occur [180]. Also, fraud by patients was detected in the past, for example by the performance of prescription forgery. This type of fraud is defined as: a prescription on a stolen form; a forged prescription to increase the dosage or duration of care; and a prescription that varies from guidelines, which is not associated with good medical practices [181].

The Netherlands: Since 2006, the structure of the Dutch healthcare system has changed into a single compulsory social health insurance scheme that allows multiple private health insurers to compete for clients. Private not-for-profit healthcare insurers are mainly responsible for the collection of funds from insured persons and for the allocation of these funds to providers. Insurers also negotiate the healthcare provision with the providers. The contribution from compulsory income related premiums is 50%. Around 45% of the costs are financed through community-rated premiums that are paid directly to the health insurer. There is also a relatively minor level of out-of-pocket payment (5%). GPs are paid via a combination of capitation fees and fee-for-service payment, while hospitals and mental care institutions are paid through a case-based payment system known as DOT/DBC [182]. In 2009, the EHFCN survey reported 2884 suspected fraud cases in the Netherlands, and estimated losses due to healthcare fraud of €2687 million in 2008 [16]. In 2012, evidence from the annual record of the Dutch Insurers Organisation (Zorgverzekeraars Nederlands) suggested annual savings of over €1.2 billion in healthcare due to control and monitoring of fraud. Most of that amount, an estimated €1 billion, was saved by ex-ante controls of incoming invoices. Further €198 million were saved by checks on service files and €15.9 million were saved by detection of inefficiencies [183]. Similar to Belgium and France, the most common fraud type in the Dutch healthcare system is inappropriate billing (up-coding and billing services that are not provided) [19]. Evidence also suggests inappropriate services such as unnecessary diagnostic tests in the daily practice of Dutch hospitals [184], and longer than necessary stay in hospital in the past when hospitals were still funded based on budgets [185, 186].

Spain: In Spain, healthcare is regulated through a statutory health insurance system with universal coverage. Healthcare is organised on a regional level with usually divided responsibilities among regional health ministries and regional health services. Funding comes from public sources (about 70%) including taxes and government allocations. Additionally, funds come from private sources (about 30%) such as out-of-pocket payments. The public healthcare system however offers services that are free of charge for patients or at low costs. Private physicians are paid on a fee-for-service basis, whereas public physicians are salaried workers. GPs have a contract that includes a salary as well as a capitation component. In general, hospitals are funded through a global budget [187]. In 2008, the estimated losses due to healthcare fraud in Spain were €4328 million although the exact number of suspected fraud cases is unknown [16]. According to Bosch (2002), there is a strong suspicion of fraud involving physicians and lawyers who get considerable compensations for patients who had road traffic accidents. Cases of inappropriate billing are also detected, including the forging of medical records to exaggerate injuries in order to claim large insurance reimbursements. Presumably, some healthcare staff may have been paid to adopt those records and deliver information to lawyers [188]. Evidence also shows inappropriate hospitalisation length [189].

Annex II: Geographical classification used for the Mapping

Table A1: Geographical classification

	Regional cooperation within a **wider cooperation area**, such as Alpine region	**Regional cooperation** between (at least) two individual regions sharing a common border/are adjacent/part of the same regional entity	**Country** cooperation between (at least) two individual countries sharing a common border/are adjacent	Regional cooperation not sharing a common border/are not adjacent/or not part of the same regional entity	Country cooperation not necessarily sharing a common border/are not adjacent/or not part of the same regional entity	The project has no regional focus (e.g. knowledge production, common (European) network)
Cross-border			x			
Transnational	x	x		(x)		
Interregional				x	x	x

Source: GOE FP, adapted from INTERREG Website.

Figure A1: Distribution of cross-border, interregional and transnational projects

■ Cross-border projects   ■ Interregional projects   ■ Transnational projects

N=423
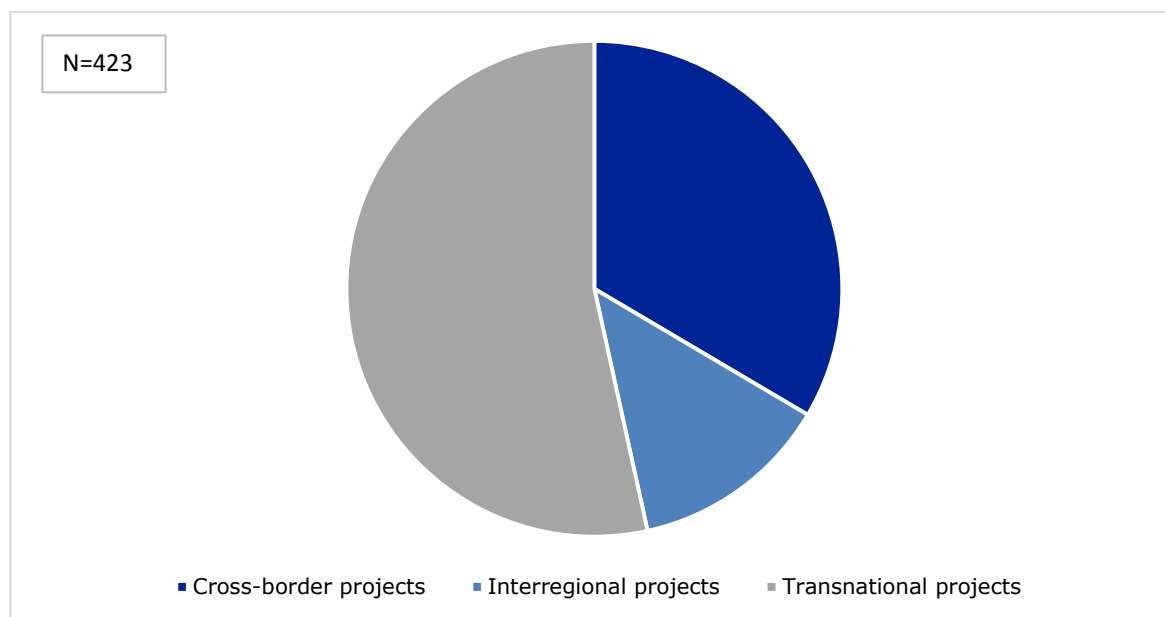
Annex III: Results stakeholder needs assessment

General results

The survey was conducted among the study's cross-border stakeholder panel, which was extended by experts in the field. The data collection started on 16 June 2017 and ended (after several extensions) on 30. August 2017. In total 33 stakeholders and experts in the field were contacted for filling in the survey. All stakeholders/experts could be reached by using the e-mail addresses identified by internet research. The focus of the survey was to reach a qualified respondent group.

In order to increase the response rate, reminders were used including also a telephone reminder and follow ups.

Until 30 August 19 stakeholders (response rate 58 %) from 11 EU-Member States (see Table A3) participated in and completed the survey. Results presented in the further sections refer on the answers of these 19 respondents.

Reasons for the lack of participation were no response at all, absence of corresponding persons, and lack of willingness to participate.

Table A2:Response rate in %

Number of contacted stakeholders	Completed questionnaires received	Response rate in %
33	19	58 %

Source: GÖ FP

Table A3: Responses on Member State level

Country	Organisation	Reply
Organisations represented in study's Cross-border panel		
EU	Association of European Border Regions (AEBR)	
EU	European Consumer Organisation (BEUC)	✓
EU	European Public Health Alliance (EPHA)	
EU	European Hospital and Healthcare Federation (HOPE)	
EU	European Observatory on Health Systems and Policies (OBS)	✓
EU	European Social Observatory (OSE)	✓
BENELUX	Secrétariat General Benelux	✓
EUREGIO DE-BE	Euregio Foundation Maas-Rhine	
AT	Austrian Public Health Institute (GOEG)	
BE	Federal Public Service Public Health (FPS)	
BE	National Institute for Health and Disability Insurance (INAMI RIZIV)	✓
BE	Mutualités Libres/Onafhankelijke Ziekenfondsen (MLOZ)	✓
DE	Allgemeine Ortskrankenkasse (AOK)	
DE	GKV-Spitzenverband	✓
EE	Haigekassa – Estonia Health Insurance Fund	✓
EL	National organization for health care services, provision, Department of international affairs (EOPYY)	✓
FI	Social Insurance Institution (KELA)	✓
FR	Centre of European and International Liaisons for Social Security (CLEISS)	
FR	Caisse Nationale d'Assurance Maladie des Travailleurs Salari (CNAMTS)	✓
IE	Health Service Executive (HSE)	✓
LT	National Health Insurance Fund under the Ministry of Health of Lithuania (VLK)	✓
NL	European Patients Empowerment for Customised Solutions (EPECS)	✓
RO	National Health Insurance House	
Additional experts in the field of cross-border collaboration		
DE	AOK Baden-Württemberg German-Swiss-French Cooperation	
FR	MGEN Swiss-German-French Cooperation	
DE	MGEN Swiss-German-French Cooperation	
AT	SANICAMEDIA Austrian-Italian Cooperation	✓
AT	NOEGUS – Health Fund and Social Fund Specialist team for EU affairs	✓
DE	Medical Center Lörrach German-Swiss Cooperation	✓
CH	Pilot project 'GRÜZ' Swiss-German Cooperation	✓
GR	Greek Alliance for Rare Diseases (PESPA)	
ES	Cross-border Hospital Cerdanya Spanish-French-Andorra Cooperation	
LT	IT Technology in Dermal and Lungs Cancer Diagnostics Latvia-Lithuania-Belarus Cooperation	✓

Source: GÖ-FP

Part 1: Enabling factors for starting cross-border collaboration

Please assess the relevance of the following obstacles for stakeholders (i.e. local authorities, healthcare payers and providers) who plan to start a cross-border collaboration project, according to your experience in the field.

Q1: **SUPPORT**

1a: … is <u>lack of support in general</u> an obstacle for starting a cross-border collaboration in healthcare

Please assess the following:

1b: **Political support**

… is lack of political support an obstacle for starting a cross-border cooperation in healthcare

1c: **Public support**

… is lack of public support an obstacle for starting a cross-border cooperation in healthcare

1d: **Financial support**

… is lack of financial support an obstacle for starting a cross-border cooperation in healthcare
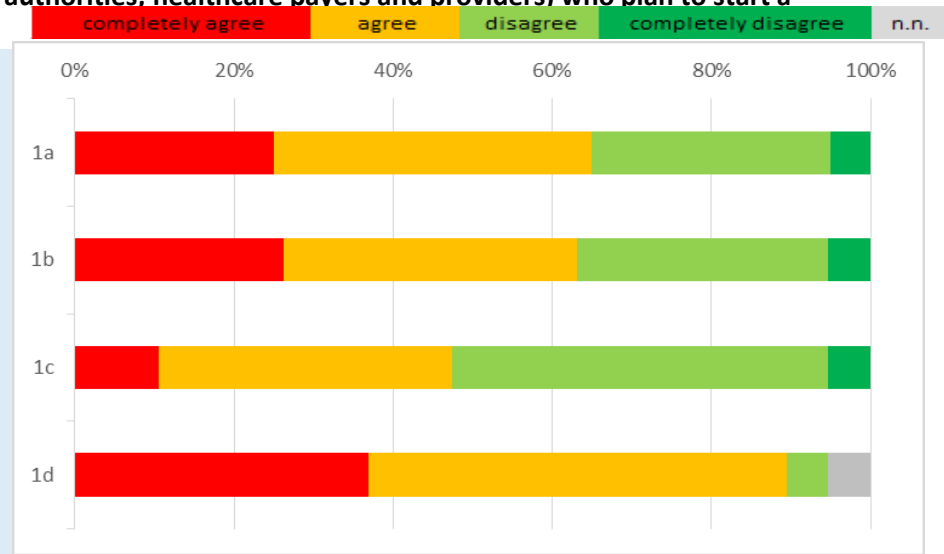
Q2: **ADMINISTRATION**

2a: … are <u>administrative issues in general</u> an obstacle for starting a cross-border collaboration in healthcare

Please assess the following:

2b: **Legal and regulatory incompatibility**

… are legal and regulatory incompatibilities an obstacle for starting a cross-border cooperation in healthcare (e.g. design of health system or insurance issues)

2c: **Judicial relations**

… are judicial relations an obstacle for starting a cross-border cooperation in healthcare

Q3: **ORGANIZATIONAL**

3a: … are <u>organizational issues in general</u> an obstacle for starting a cross-border collaboration in healthcare

Please assess the following:

3b: **Workforce availability**

… is workforce availability (physicians, nurses, etc.) an obstacle for starting a cross-border cooperation in healthcare

3c: **Technical incompatibility**

… are technical incompatibilities (as data exchange between IT-Systems) an obstacle for starting a cross-border cooperation in healthcare

Q4: **REIMBURESMENT**

4a: …. are <u>reimbursement issues in general</u> an obstacle for starting a cross-border collaboration in healthcare

Please assess the following:

4b: **Lack of financial incentives**

… is the lack of financial incentives (potential saving or additional revenue) an obstacle for starting a cross-border cooperation in healthcare

4c: **Payment for cross-border initiatives**

… are payment issues an obstacle for starting a cross-border cooperation in healthcare

4d: **Choice of reimbursement mechanism (e.g. Regulation, Directive, negotiated tariff)**

… is the choice of reimbursement mechanism an enabling factor for starting a cross-border cooperation in healthcare
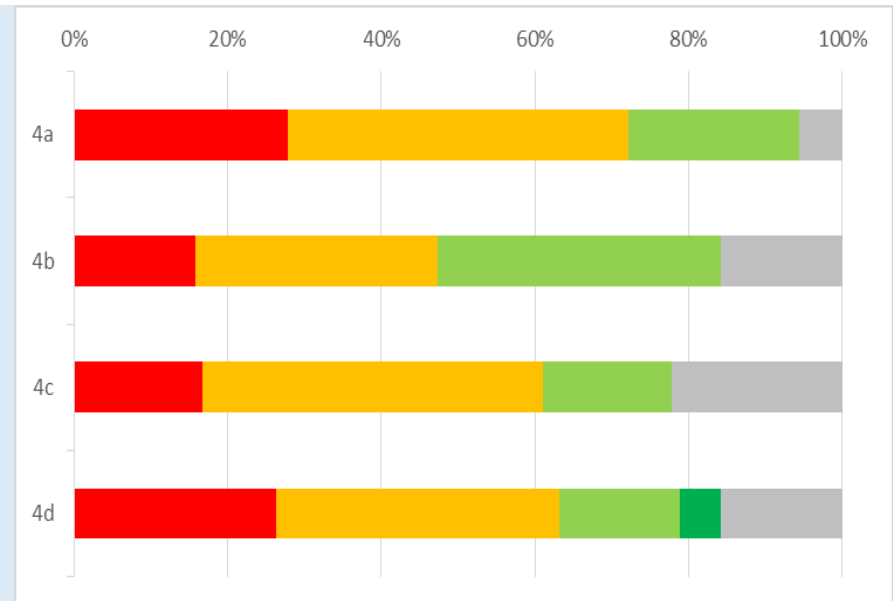
Q5: **MEDICINE**

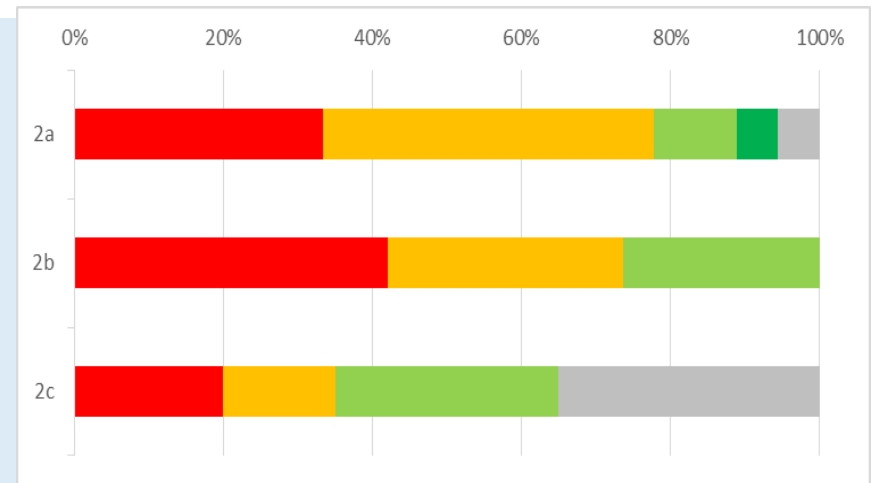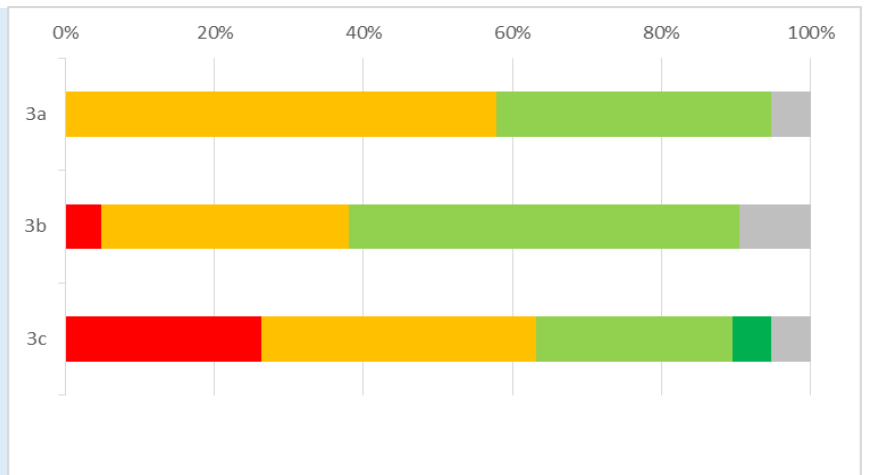5a: … are <u>medical issues in general</u> an obstacle for starting a cross-border collaboration in healthcare

Please assess the following:

5b: **Scope of medical services**

… Is the scope of medical services provided in a specific region/country an obstacle for starting a cross-border cooperation in healthcare

5c: **Variation in medical protocols**

… is the variation in medical protocols an obstacle for starting a cross-border cooperation in healthcare
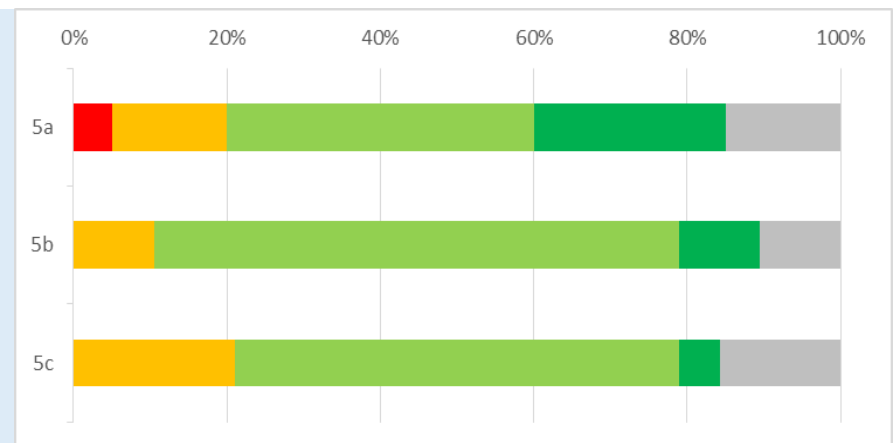
Q6: **OPERATION**

6a: …. are any <u>operational issues in general</u> an obstacle for starting a cross-border collaboration in healthcare

Please assess the following:

6b: **Lack of know-how**
**(how to collaborate, to make agreements, to get funding)**
… is the lack of know-how an obstacle for starting a cross-border cooperation in healthcare

6c: **Lack of alignment of interests and objectives (common win-win situation)**

… is the lack of alignment of interest and objectives an obstacle for starting a cross-border cooperation in healthcare
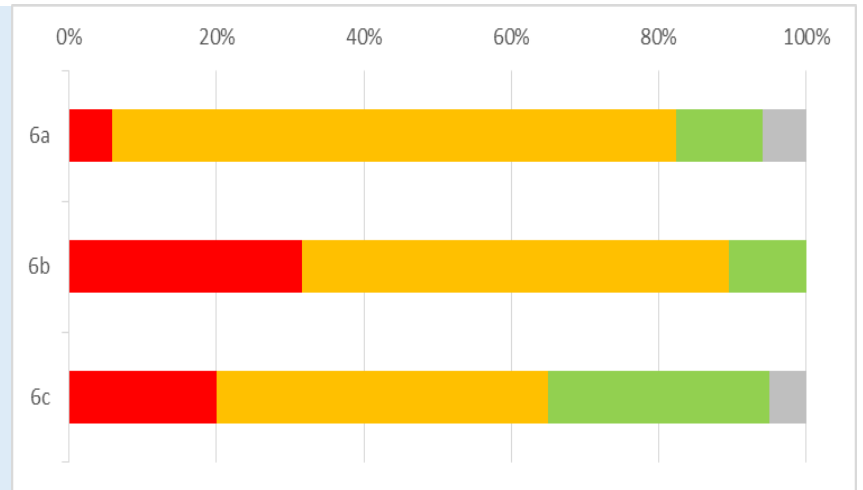
Q7: **POLITICAL AND ADMINISTRATIVE CONSTELLATION**

7a: …. are <u>political and administrative constellations in general</u> an obstacle for starting a cross-border collaboration in healthcare (e.g. administrative burden or differing political motives)

Please assess the following:

7b: **Border-region is part of a centralist state**
… does the obstacle arise because the border-region is part of a centralist state

7c: **Border-region is part of a federal state**
… does the obstacle arise because the border-region is part of a federal state
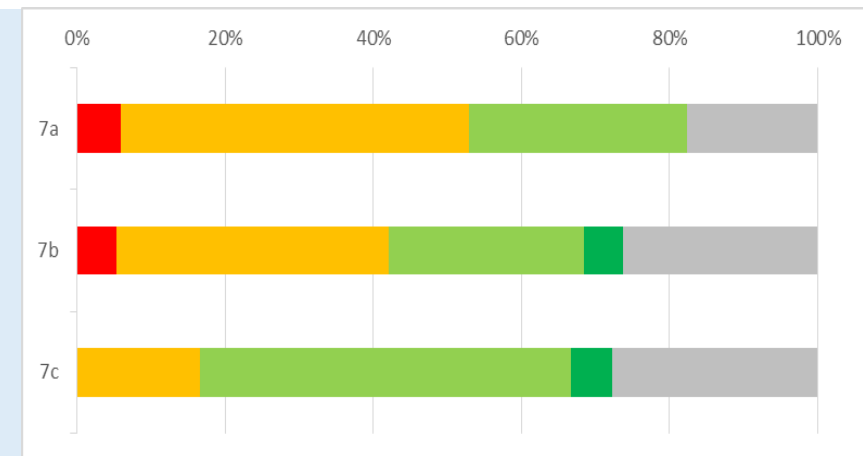
Q8: **INFRASTRUCTURE**

8a: … are <u>infrastructure related issues in general</u> an obstacle for starting a cross-border collaboration in healthcare

Please assess the following:

8b: **Medical infrastructure**

… is the medical infrastructure (e.g. not sufficient available) an obstacle for starting a cross-border collaboration in healthcare?

8c: **Transport infrastructure**

… Is the transport infrastructure an obstacle for starting a cross-border collaboration in healthcare?

8d: **Technical infrastructure**

… is the technical infrastructure an obstacle for starting a cross-border collaboration in healthcare?
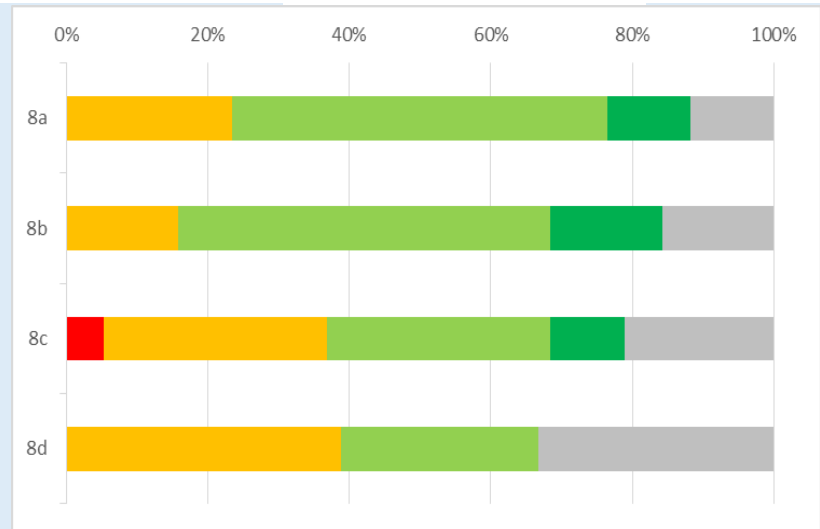
Q9: **HABITS; CULTURE; LANGUAGE**

9a: **Habits and culture**

…. are any issues regarding habits and culture (e.g. homogeneous vs. heterogeneous) an obstacle for starting a cross-border collaboration in healthcare?

9b: **Language issues**

…. Is language an obstacle for starting a cross-border collaboration in healthcare?
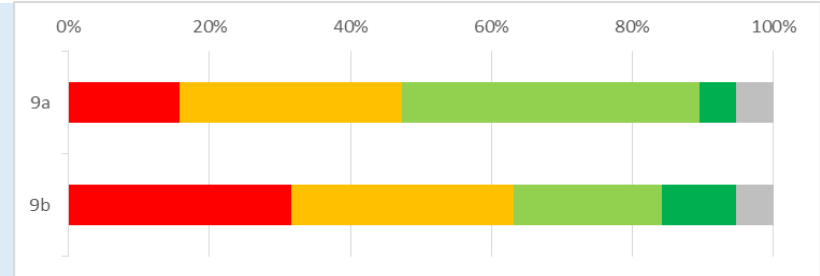
Q10: **GEOGRAPHY**

Geographical context

10a: … is the geographical context an obstacle for starting a cross-border collaboration in healthcare? (e.g. remoteness and geographical barriers such as mountains)
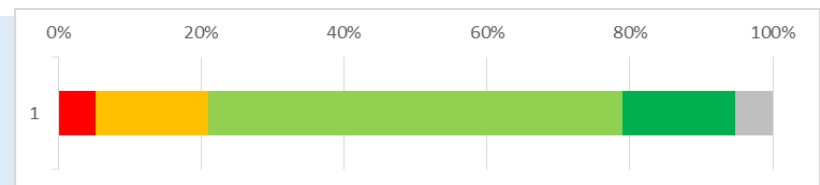
Q11: **FRAUD**

11a: **Fraud related issues**

… are issues related to fraud an obstacle for starting a cross-border collaboration in healthcare?
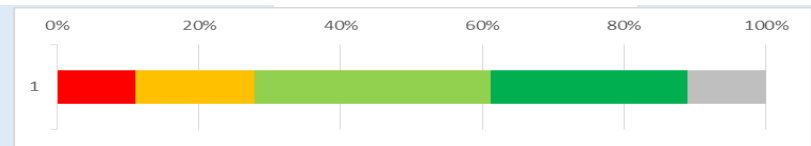
Part 2: Obstacles for starting a cross-border collaboration

Please assess the relevance of the following enabling factors for stakeholders (i.e. local authorities, healthcare payers and providers) who plan to start a cross-border collaboration project, according to your experience in the field.

Q1:   **SUPPORT**

1a: … is <u>support in general</u> an enabling factor for starting a cross-border collaboration in healthcare

Please assess the following:

1b: **Political support**

… is political support an enabling factor for starting a cross-border cooperation in healthcare

1c: **Public support**

… is public support an enabling factor for starting a cross-border cooperation in healthcare

1d: **Access to funding**

… is financial support an enabling factor for starting a cross-border cooperation in healthcare

Q2:   **ADMINISTRATION**

2a: … are <u>administrative factors in general</u> an enabling factor for starting a cross-border collaboration in healthcare

Please assess the following:

2b: **Regulatory compatibility**

… are regulatory compatibilities an enabling factor for starting a cross-border cooperation in healthcare

2c: **Judicial relations**

… are judicial relations an enabling factor for starting a cross-border cooperation in healthcare

Q3: **ORGANIZATIONAL**

3a: …. are <u>organizational factors in general</u> an enabling factor for starting a cross-border collaboration in healthcare

Please assess the following:

3b: **Workforce availability**

… is workforce availability (i.e. physicians, nurses, etc.) an enabling factor for starting a cross-border cooperation in healthcare

3c: **Technical incompatibility**

… are technical compatibilities (as data exchange between IT-Systems) an enabling factor for starting a cross-border cooperation in healthcare

Q4: **REIMBURSEMENT**

4a: … are <u>reimbursement issues in general</u> an enabling factor for starting a cross-border collaboration in healthcare

Please assess the following:

4b: **Financial incentives**

… are financial incentives an enabling factor for starting a cross-border cooperation in healthcare

4c: **Payment for cross-border initiatives**

… are payment compatibilities an enabling factor for starting a cross-border cooperation in healthcare

4d: **Choice of reimbursement mechanism**

… is the choice of reimbursement mechanism an enabling factor for starting a cross-border cooperation in healthcare (e.g. Regulation, Directive, negotiated tariff)

Q5:   **MEDICINE**

5a: …. are <u>medical issues in general</u> an enabling factor for starting a cross-border collaboration in healthcare

Please assess the following:

5b: **Scope of medical services**

… is the scope of medical services provided in a specific region/country an enabling factor for starting a cross-border cooperation in healthcare

5c: **Common medical protocols**

… is a common medical protocol an enabling factor for starting a cross-border cooperation in healthcare

5d: **Continuity of care**

… is the continuity of care an enabling factor for starting a cross-border cooperation in healthcare

Q6:   **OPERATION**

6a: …. are <u>operational issues in general</u> an enabling factor for starting a cross-border collaboration in healthcare
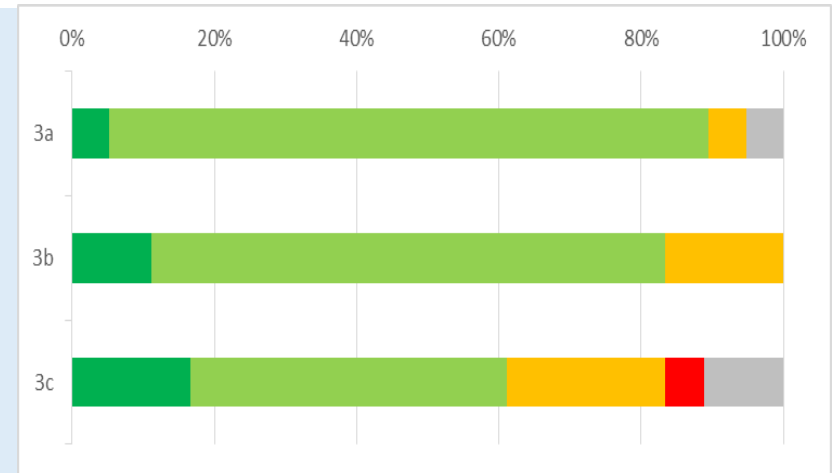
Please assess the following:

6b: **Sufficient know-how
(how to collaborate, to make agreements, to get funding)**

… is sufficient know-how an enabling factor for starting a cross-border cooperation in healthcare

6c: **Alignment of interests and objectives**

… is the alignment of interest and objectives (i.e. common win-win situation) an enabling factor for starting a cross-border cooperation in healthcare
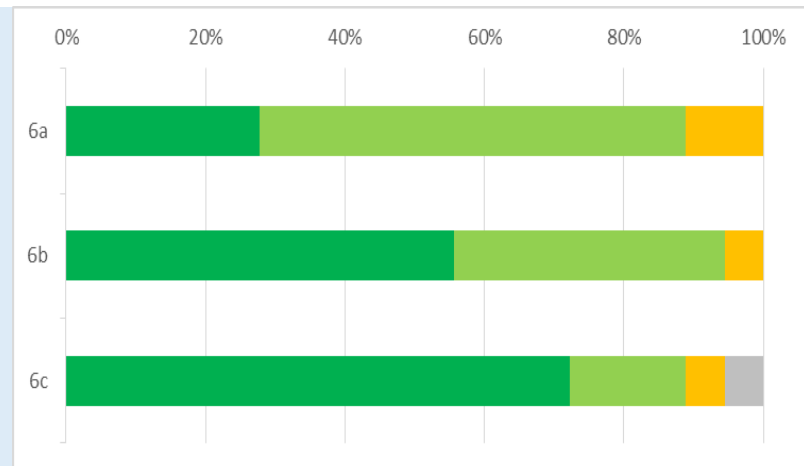
Q7: **POLITICAL AND ADMINISTRATIVE CONSTELLATION**

7a: … is <u>political and administrative constellation in general</u> an enabling factor for starting a cross-border collaboration in healthcare
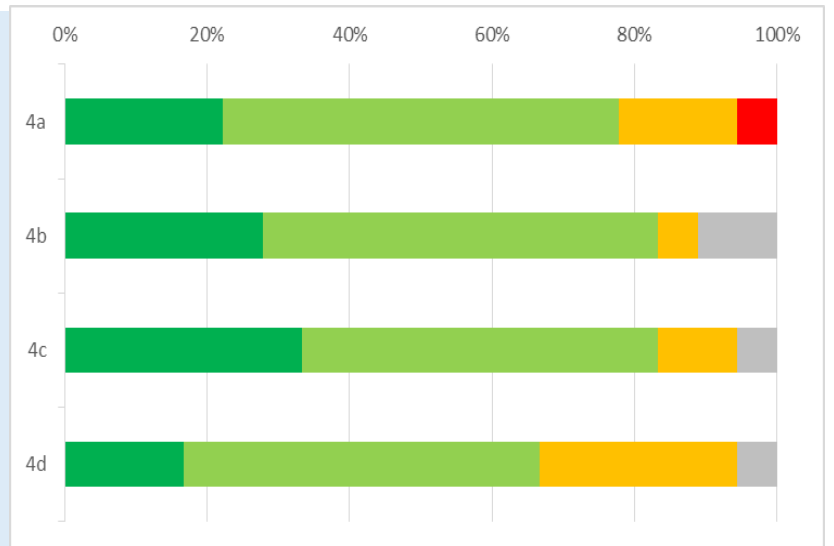
Please assess the following:

7b: **Border-region is part of a centralist state**

… is it an enabling factor that the border-region is part of a centralist state

7c: **Border-region is part of a federal state**

… is it an enabling factor that the border-region is part of a federal state

Q8: **INFRASTRUCTURE**

8a: …. are <u>infrastructure related issues in general</u> an enabling factor for starting a cross-border collaboration in healthcare
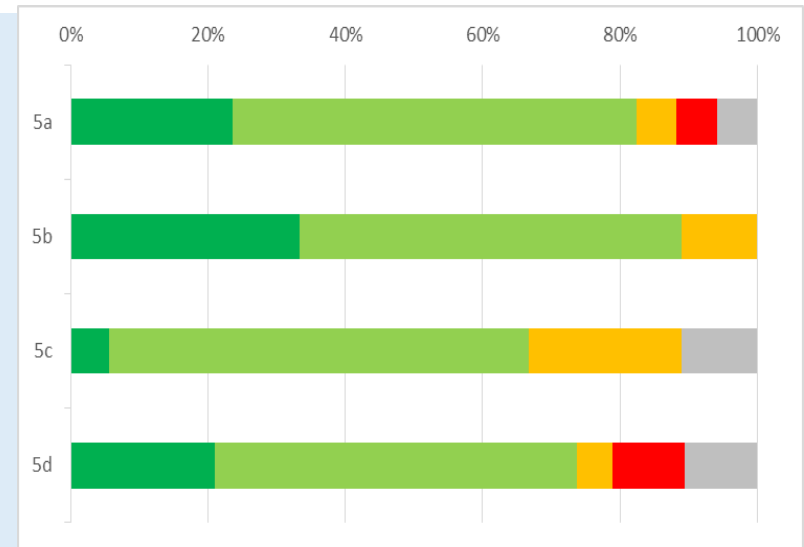
Please assess the following:

8b: **Medical infrastructure**

… is the medical infrastructure an enabling factor for starting a cross-border collaboration in healthcare?

8c: **Transport infrastructure**

… is the transport infrastructure an enabling factor for starting a cross-border collaboration in healthcare?

8d: **Technical infrastructure**

… is the technical infrastructure an enabling factor for starting a cross-border collaboration in healthcare?

Q9: **HABITS; CULTURE; LANGUAGE**

9a: **Habits and culture**

… are habits and culture an enabling factor for starting a cross-border collaboration in healthcare?(e.g. homogeneous vs. heterogeneous)

9b: **Language issues**

…. is language an enabling factor for starting a cross-border collaboration in healthcare?
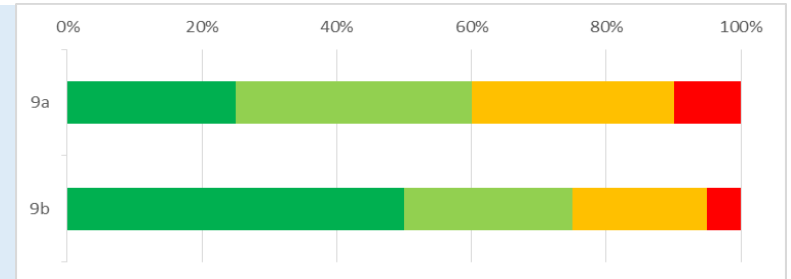
Q10: **GEOGRAPHY**

10a: **Geographical context**

… is the geographical context an enabling factor for starting a cross-border collaboration in healthcare? (e.g. geographical closeness, same macro-region)
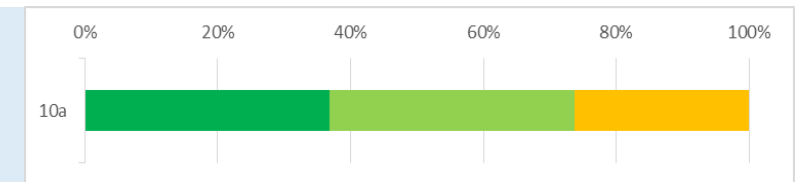
Q11: **COLLABORATION NETWORK**

11a: **Wider collaboration network**

… is a wider collaboration network an enabling factor for starting a cross-border collaboration in healthcare?

Part 3: Summary of experiences and need for support
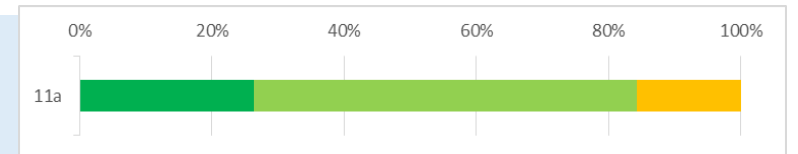
According to your experience in starting a cross-border collaboration project, what kind of tools do you need?

Results show that *Checklists* and *Manuals/Guidelines* are first priority for most of the stakeholders. Also important but considered less necessary are FAQ and skill lists. The least important are medical protocols and EU templates, which could be considered as nice to have.

For development of the *Cross-border.Care Manual & Tools* the focus was therefore given to checklists and Manuals/Guidelines.

Tools (in order of relevance)	Relevance
Checklist	15 (79 %)
Manuals/Guidelines	11 (58 %)
FAQ	10 (53 %)
Skill List	9 (47 %)
Medical Protocols	9 (47 %)
EU Template	7 (37 %)

For which specific topics would you use the respective tool?

The main topics that should be covered by tools are (in order of priority): tools and support on how to address, involve and manage stakeholders, tools and support for process or project management, tools addressing resource issues (personnel, funding and time), justifications for why to start a cross-border healthcare project, communication and legal or contractual issues. Reimbursement and cost issues were mentioned but seem to strongly depend on national/regional specificities topics that can hardly be addressed on a general level.

For development of the *Cross-border.Care Manual & Tools* the focus was therefore given to stakeholders, Process/Project Management and Resources.

Topic	number of listings
Stakeholder to be addressed	12 (63 %)
Process / Project Management	12 (63 %)
Resources (Personnel, Funding, Time)	9 (47 %)
Reason / Why	6 (32 %)
Communication	6 (32 %)
Legal / Contract	5 (26 %)
Reimbursement	3 (16 %)
Cost / ROI	2 (11 %)

Topics suitable to be covered by manuals/guidelines?

The preparation of application, partnership agreements and the project implementation process seems the most important topics for manuals or guidelines according to the stakeholders. Even though some stakeholders would prefer rather contacts with people across the EU with experience in CBC projects. This could be considered as a platform of experts. Other issues that could be addressed by manuals or guidelines, beside medical

issues, are patient pathways, reimbursement and many more mentioned under obstacles and enabling factors in the questionnaire.

Topics suitable to be covered by FAQs?

For the preparation of an application; along the line on how to decide and start a CBC Project but also on specific project set-ups, organizational and management issues as reimbursement, access to care, patient rights, complaints, continuity of care and health workforce issues. To answer questions as, what is the purpose of my project, which resources are needed for starting and running a CBC project, or simply, where can I find more information.

Topics suitable to be covered by templates?

Templates could help on issues as administrative infrastructure, operations, legal, judicial and workforce issues. Some stakeholder think to make them really helpful for a local situation they should be better developed on a regional or national level. Where others ask for a more general standard.

Topics suitable to be covered by skill lists?

This question was answered in very different ways. Some stakeholder gave a list of important skills as for instance: knowledge about legislation, political framework, multilingualism, CBC experiences, good understanding of health systems, networking competence, and specific financing experiences. Others answered rather on a more system level: skill mix represented by different stakeholders; workforce availability with the topics professional recognition in different countries, work permit, or issues as culture and languages.

Topics suitable to be covered by protocols?

Most stakeholders consider general protocols not feasible for the use on a regional or local level. For medical protocols in terms of guidelines or standards from Medical Associations this concern does not apply of course.

Accessible and practical information on available EU funding and how to apply for it

Information on EU and local funding in terms of availability, on how to apply and how much money you can obtain. The NCPs should be involved in a regular information exchange on funding but also being better informed on the progress of projects in their domain.

Annex IV: Case studies on cross-border healthcare collaboration

General information

In total, 66 projects have been studied, 48 of which were identified through the database search in the course of the 'Mapping' exercise (see section **Error! Reference source not found.**) and 18 of which were identified through the grey literature manual search. Based on the quality and the level of detail of the information identified, 36 projects could be included in the case studies.

With respect to the countries concerned, it is striking that most cross-border collaboration projects for which sufficiently detailed information could be identified, are located in Central Europe, namely Germany (involved in 11 cross-border collaboration projects), the Netherlands (involved in seven cross-border collaboration projects) and Belgium (involved in five cross-border collaboration projects). Other countries involved in one to three cross-border collaboration projects are Austria, Bulgaria, the Czech Republic, Denmark, Spain, Finland, France, Hungary, Italy, Malta, Norway, Romania, Sweden and the UK. Six Joint Action projects served as the basis for information in the 'Knowledge Transfer and Management' category. However, due to their specific features (e.g. cooperation of all EU Member States), they were not included in the figures given above.

In addition, it became clear during the research that most cross-border projects cannot simply be classified into one of the aforementioned categories. For example, a project that is placed in the category of 'Treatment and Diagnostics' may also include elements that come under other categories, such as 'Health and Care Workforce and Training' or 'High-Cost Capital Investment'.

Case Study 1: Cross-border collaboration in the field of Health and Care Workforce and Training

Legal dimension

Aachen – Maastricht university hospital collaboration: Different contracts enabled professional mobility [110]:

> **+ Different schemes for personnel deployment**

- Consultancy-like model: A health professional is fully employed at one hospital and spends a proportion of time at the partner hospital. The partner hospital is invoiced for the work performed there based on the relevant hourly rates and working hours.
- Dual employment: health professionals have part-time contracts at both hospitals.
- Inter-hospital contracts: these are used for staff secondments. Based on the secondments, staff are dispatched to the partner hospital either on an ad-hoc or regular basis.

> **- Mutual recognition of diplomas, certificates and other evidence of formal qualifications hampered personnel deployment**

However, despite these contracts staff exchanges were delayed due to long bureaucratic procedures related to the recognition of professionals' diplomas.

Competence to Go: Directive 2005/36/EC on the recognition of professional qualifications serves as a starting point for workforce exchange. The mutual recognition of diplomas, certificates and other evidence of formal qualifications is a

Legal dimension
key goal of the Directive [190]. The goal of fostering the recognition of diplomas received on the other side of the border was partly achieved in 2014, when the social services office in Kiel (DE) started to recognise the Danish degree for care professionals as the German equivalent [127].
Professional mobility across the Danube: Călăraşi DEH (District Emergency Hospital) in Romania signed individual contractual agreements with Bulgarian physicians, rather than with another healthcare organisation. The number of night shifts of Bulgarian physicians at the DEH is stipulated in the contracts. The Bulgarian physicians need to comply with Romanian tax laws and labour legislation [122].   **+ Application of Romanian require-ments**
SourcE: The aim of the project was to reduce legal barriers to cross-border care and to the exchange of staff [191].

Financial dimension
Competence to Go: The project received funding from Interreg 4A Syddanmark-Schleswig-K.E.R.N. Prior to the financial crisis in 2008, significant wage differentials for care workers were observed across the border. Due to budgetary pressures on the Danish care system in the aftermath of the crisis, Danish care workers became unemployed. By contrast, there was a shortage of care workers on the German labour market. The cross-border collaboration was therefore a straightforward strategy to overcome labour market imbalances (and its associated costs). The reduction in regulative barriers led to a convergence of net wages of care workers [127].   **+ Professional mobility compensating for cross-border over-supply and undersupply of care professionals**
Future proof for cure and care: The budget was EUR 3 705 992, with EU co-funding accounting for 50 % of that. It proved possible to increase labour market flexibility by fostering the mobility of the workforce in the region, which may help to save on personnel costs [192].
+ Win-win situation: lack of personnel is balanced out – physicians benefit from an improved monthly salary — **Professional mobility across the Danube:** The Bulgarian doctors earn a monthly net income (for 5-6 night shifts) of EUR 375, which corresponds to their monthly net income working on a full time-basis in Bulgaria [122].

Administrative dimension
Competence to Go: The Interreg project involved two German partners and one Danish partner (the Wirtschaftsakademie Schleswig-Holstein business school and the Akademie für Gesundheits- und Sozialberufe healthcare and care college, both located in Flensburg; and the Social- og Sundhedsskolen basic healthcare college in Fredericia). The aim of the project was to reduce bureaucratic barriers to cross-border mobility in the field of regulated professions. Due to the labour market situation, care professions received the highest priority [193].

Future proof for cure and care: Provinciale Ontwikkelingsmaatschappij Limburg (BE) acted as the lead partner and 26 additional partners (DE/BE/NL) collaborated [192]**.**

SourcE: A concept was developed to support the cross-border recognition of training and professional qualifications [191].

Professional mobility across the Danube: The district public health directorate in Călăraşi, the hospital human resources department, the Romanian Ministry of Health and the College of Physicians were involved in

> **+ Central registration for physicians to receive a work permit**

the recognition of Bulgarian diplomas in Romania. Bulgarian physicians wishing to work in Romania, were obliged to register with the College of Physicians. Only after the College of Physicians had signed a licence for them to practise were the Bulgarian physicians allowed to sign the contract with the district public health directorate. Usually the whole recognition process takes about 1 year due to bureaucratic processes [122].

Operational dimension

> **+ Health professionals conduct joint operations, substitute one another during vacations, make up for a lack of specialists and engage in joint research and education**

Aachen – Maastricht university hospital collaboration: An application was made for an extended professorship for three MUMC+ and three UKA professors, enabling them to teach in Aachen and Maastricht respectively. The School for Cardiovascular Diseases (MUMC+) and the Institute for Molecular Cardiovascular Research (UKA) collaborate [110] in the field of cardiovascular disease.

Competence to Go: The first step involved analysing and comparing the existing local curricula. For better common understanding, the curricula descriptions focused on key content rather than on formal (and thus

> **+ Language training and intercultural competence**

country-specific) terminology. A working group then audited the schools and evaluated whether the actual practices met the quality requirements of the curricula. Both the theoretical and practical aspects of the programmes were evaluated and compared. On the basis of the findings, a roadmap was set up, including a pilot scheme, which included training in language skills and cultural competences [127].

Future proof for cure and care: Like 'Competence to Go', this project identifies similarities and common features of the education and training of care workers. Furthermore, master programmes for palliation, oncology and dementia were developed. The organisation of job fairs aims to raise public awareness about the job prospects of care workers [192].

> **+ Knowledge transfer tool for emergency care staff**

SourcE: The project focused on education and training modules for additional qualifications in the field of cross-border emergency care. In addition, a tool for transferring knowledge to staff actively involved in emergency care in the Euregio region was developed. Furthermore, framework conditions were established, enabling internships, sitting in on classes and exchange of staff. [191]

Operational dimension

EUCREW: Language courses were held for emergency care personnel. Besides linguistic basics, the courses impart information about the cultural and systemic differences between the various countries (BE, DE, NL). As the

+ Events to become familiar with other systems of project participants

countries have differing emergency care systems, emergency care personnel are trained in the emergency care structures and relevant authorities in the neighbour-ing countries. Personal contacts are encour-aged by events and symposia for the purpose of networking. Once every 2 years, a Euregio training day is held, which is designed to enable practical exchange of experiences and approaches and the presen-

+ Resulted in permanent establishment of a working group

tation of new developments in the field [123].

Professional mobility across the Danube: Five Bulgarian physicians work five 24-hour shifts per month at Călăraşi DEH (District Emergency Hospital). The staff shortages on the

+ Adherence to Romanian labour law

Bulgarian side can be compensated for by offering the advantages of reduced salary expenses for the Romanian physicians and avoiding national specialists leaving the national health system. Usually Bulgarian physicians work five to six 24-hour shifts per month. In order to prevent conflicts with the College of Physicians with respect to monthly working hours, the physicians reduced their working hours at Silistra Hospital (BG). Transportation between the two hospitals is organised by cooperating with the border police, who agreed to offer their transport boat. Further transport is organised by a hospital car, which takes the physicians from the river pier to the hospital. If the police boat is not available, costs for the ferry are covered by the Romanian hospital. To overcome language barriers (Romance language vs. Slavic language), the Romanian hospital employs an interpreter, who works the same shifts as

+ Organised border crossing

the Bulgarian physicians [122].

Medical dimension

Aachen – Maastricht university hospital collaboration: Collaboration, including professional mobility, took place in various disciplines, e.g. paediatric surgery, gastroenterological surgery, nuclear medicine, cardiovascular care/vascular surgery, neurosurgery, neurology. During vascular operations at UKA, a MUMC+ professor performs teleneuromonitoring from MUMC+. For complex operations, the MUMC+

+ Health professional mobility between hospitals

professor travels to UKA. If teleneuromonitor-ing is required, five neurophysiologic laboratory technicians also travel to UKA [126].

Competence to Go (DE/DK): The evaluation of education and training pro-grammes very likely had positive effects on quality through bench-learning. Accordingly, the collaboration supports quality improvements in the provision of care services in the border region [127].

Case Study 2: Cross-border collaboration in the field of *Emergency Care*

Legal dimension

Braunau – Simbach emergency care collaboration:
The first agreement (signed in 1994) on emergency care for trauma surgery patients was signed by 12 Bavarian sickness funds and Braunau Hospital in a legal vacuum. In addition, an agreement on the

> **+ Formal agreement accelerated reimbursement process**

reimbursement of patients was signed with the Bavarian sickness funds. That agreement accelerated the reimbursement process, which varied in length before the start of official cooperation [110].

Emergency care in the Meuse-Rhine Euregio (EMR): To enable cross-border emergency care in the Meuse-Rhine Euregio, national differences were addressed by specific laws and agreements between the countries [110]:

- Acknowledgement of German and Dutch hospitals in the Belgium 100-system
- BIG (Beroepen in de individuele Gezondheidszorg) registration of medical personnel (NL)
- Optical and acoustic ambulance signals
- Import of pharmaceuticals
- Difference in competences (basic life support vs. advanced life support)

> **+ Alignment of national legal requirements**

EUMED: A bilateral agreement between the Netherlands and Germany governed general emergency care, including ambulance services, the work of emergency doctors and the operation of emergency helicopters. Another (unilateral) agreement governed operations of the Dutch ambulance service that were requested by the rescue dispatch centre in Belgium. The agreement was entered into by the Dutch ambulance service, the municipality of Riemst, the Federal Health Ministry of Belgium, a number of hospitals and Belgian health insurance funds. Financial issues were also governed by the agreement. Costs not covered by health insurance funds were covered by the municipality of Riemst. Collaboration in the case of large-scale emergencies was governed by trilateral agreements and built upon the aforementioned bilateral agreements. The agreement governed the alert system, the journey to the site of the emergency, the delivery and deployment of personnel and material aids, leadership and responsibilities. In addition, the journey to the respective hospitals and the post-evaluation of emergency operations were governed by the agreement [118].

> **+ Regulation of post-evaluation of emergency cases**

Teno River valley: Finland, Sweden and Norway have collaborated in the field of emergency care since the 1970s. However, the official agreement signed in 2012 has formalised cross-border services. The agreement ensures that ambulances and helicopters are available for emergency situations in all three countries [117].

Financial dimension

Braunau – Simbach emergency care collaboration:
In the first years of the collaboration, accounts were settled directly with Bavarian sickness funds. Later that changed to accounting by the regional health fund of Upper Austria. In the first 3 years of the cooperation, billing for emergency patients corresponded to the number of inpatient days only. Since then, billing for

> **- Differing financing schemes hampered collaboration in the initial phase**

emergency patients has been performed according to the financial guidelines of the Upper Austrian health funds – just as for patients who ask their sickness fund for prior authorisation. In the initial phase, accounting was difficult due to different financing systems (Austria: public direct payments, Germany: full financing), which led to differences in costs for an operation involving an emergency doctor (AT: EUR 50 vs. DE: EUR 500 per emergency operation). The excess costs were borne by the Upper Austrian Red Cross. In 2009, the costs of ambulance transportation amounted to EUR 120 000 (including EUR 30 000 for recumbent patients) [110].

Regarding ambulance services for patient transportation between the two hospitals, special permission was obtained of the Bavarian Ministry of Internal Affairs, enabling the Bavarian Red Cross to deviate from their usual tariffs [125].

Emergency Care in the Meuse-Rhine Euregio (EMR): Financing and reimbursement of emergency care (i.e. ambulance transport costs, costs of emergency treatment, costs of emergency doctors) differ in the countries involved, leading to income losses and an additional financial burden on the systems [110].

> **- Differing financing and reimbursement schemes result in financial burdens on the collaborating partners**

> **- Differing reimbursement schemes lead to unallocated costs**

EUMED: The reimbursement of large-scale emergencies included coverage of unallocated costs, i.e. costs not attributable to a specific patient or organisation by the respective Ministry of Internal Affairs [118].

Administrative dimension

Braunau – Simbach emergency care collaboration: For the preparation of the collaboration, a steering group and a project group were established and met biweekly at peak times. The management of the two hospitals always appeared together during negotiations and in front of the media [110].

> **+ Establishment of joint coordination unit for emergency cases**

Füssen – Reute emergency care collaboration: The Königswinkel-Außerfern (DE) heart attack network was put in place to coordinate the emergency services of the two countries. Füssen Hospital is part of the heart attack coordination network of Tyrol

> **+ Data transfer via Tele-ECG-System**

(AT). A Tele-ECG-System is used to transfer data and ECG results directly from the ambulance to the hospital, which saves time during the treatment process. Patients who suffered an acute heart attack could be brought directly to the

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Administrative dimension
heart centre in Füssen (DE) [112].
EUMED: In a steering group, partner organisations met at least two times per year (at the beginning of the collaboration six meetings were held per year) [118].
ECTLI: ICT/telemedicine helped to ensure communication in case of a catastrophic event [119]. **+ Use of ICT-supported/telemedicine-supported communication**

Operational dimension
Braunau – Simbach emergency care collaboration: The following parties are involved in the functioning of the collaboration: emergency rescue dispatch centres in Passau (DE) and Ried im Innkreis (AT), the Bavarian Red Cross (DE), 12 Bavarian sickness funds (DE) and Braunau Hospital (AT). Ambulances are coordinated by the Bavarian Red Cross. The operation of German ambulances is governed by an informal agreement on a virtual border.   The request for a cross-border emergency rescue helicopter by Braunau Hospital was rejected for political reasons and refusal of co-financing by the province of Upper Austria. The emergency rescue helicopter with a European licence is based in Suben (DE). A helicopter of the German ADAC (German Automobile Association) and a helicopter of the Austrian ÖAMTC (Austrian Automobile Association) operate from there for 6 months each. The crew is divided into German and Austrian staff. The helicopter handles around 1 300 cases per year (59 % on the Bavarian side, 34 % on the Austrian side) [110]. **- Use of cross-border helicopter inhibited by political orientation and refusal to provide co-financing**
EUMED: Collaboration partners were the persons responsible for ambulance services, emergency doctor services and emergency departments. Activities involved routine rescue services and large-scale disasters and the allocation of injured persons to hospitals [118].
ECTLI: During the project, organisations working in the field of emergency care and disaster control were mapped. Those data were integrated into an existing web application (Acute Zorgkaart NL), a smartphone app (A-Z Euregio app) and into the trauma mobile phone, which was specifically for emergency doctors. The sharing of infrastructure plays an important role in emergency care cooperation. In the event of a catastrophe, the bed capacity could be increased [119]. **+ Mutual training on potential catastrophic**

Operational dimension
Gmünd (AT) – Ceské Velenice (CZ): Gmünd Hospital treats patients for accidents, loss of consciousness, stroke, heart problems, acute abdominal discomfort, severe pain, respiratory distress and bleeding. Return transport (after initial medical treatment in Gmünd) is preferably performed by Czech ambulances. The Austrian and Czech ambulance service and emergency rescue helicopter organisations were involved. For the pilot project three ambulances were used [110].
Teno River valley: In Finland, municipal healthcare centres are in charge of ambulance service operations. The number of ambulances used is calculated on the basis of the catchment area (given the long driving times). Typically one ambulance is in immediate response and one or two serve as a backup. Reciprocal ambulance transportation assistance between Finland and Norway is in place. Similar procedures are in place for helicopters [117].

Medical dimension
Braunau – Simbach emergency care collaboration: At the start of the collaboration, only 170 patients received emergency care. Twelve years later (in 2009), that number had risen to around 500 patients [110].
EUMED: Project activities started back in the late 1990s and cover routine rescue services and large-scale disasters. In addition to ambulance transportation, rescue helicopter Christoph 1 of the German ADAC (stationed in Würsele-Merzbrück) and another helicopter stationed in the province of Liége can be deployed. A Euregio emergency support plan (Eumed-Ambu) was developed with the aim of improving cross-border emergency rescue operations during large-scale disasters. Among other things, it sets procedures for alerts and provision of emergency rescue units [118]. Table 1: EUMED rescue operations, 2005-2006 (30 June 2006) <table><tr><td></td><td>2005</td><td>2006</td></tr><tr><td>Rescue operations, on the German side</td><td>161</td><td>79</td></tr><tr><td>Rescue operations by RAV (regional ambulance service) in DE</td><td>113</td><td>26</td></tr><tr><td>Rescue operations by RAV (regional ambulance service) in BE</td><td>78</td><td>18</td></tr><tr><td>Rescue helicopter operations</td><td>22</td><td>17</td></tr></table> Source: [118]

Case Study 3: Cross-border care collaboration in the field of *High-Cost Capital Investment*

Legal dimension
Cerdanya Cross-Border Hospital: It was the first agreement between the Catalan government and the regional Council of Languedoc-Roussillon. In 2006, a private foundation called the 'Fundación Privada Hospital de la Cerdanya' was established under Catalan law as an operative instrument enabling the continuation of the project. By establishing that foundation, the collaboration of the two countries was further anchored in law. In 2006, the most suitable legislative framework was based on the newly established European Grouping of Territorial Cooperation (EGTC). A treaty was signed between the Catalan and the French Ministers of Health, designating the EGTC as a transnational instrument for the steering and management of the joint hospital. Regional authorities were also integrated into the treaty. Key points agreed are: participation of regional authorities in the ECTC steering body (40 % French public administration, 60 % Catalan public administration), a financial plan including financial contributions of both parties (same percentage distribution), establishment of organisational management and a system for adoption of decisions [109, 110]. **+ Formal agreement including arrangement on participation of regional authorities and financial plan**

Financial dimension
Braunau – Simbach European clinical centre: Some EUR 1.2 million was invested in the joint coronary angiography unit, most of which was contributed by Braunau Hospital. After turning the joint coronary angiography unit into COR GmbH (Ltd.), both hospitals paid for additional services obtained by the organisation.
Cerdanya Cross-Border Hospital: The total construction costs amounted to EUR 31.6 million, of which 60 % (EUR 18.6 million) was subsidised by ERDF. The remaining 40 % (EU 12.4 million) was covered by Catalonia (60 %, EUR 7.4 million) and France (40 %, EUR 4.9 million). In addition, EUR 8 million was spent on medical equipment [109, 110]. **+ 60 % funded by EU**
Radiotherapy in Flensburg: The hospital in Flensburg reached its capacity limits, necessitating an expansion of its radiotherapy facilities. Denmark provided EUR 500 000 in co-financing towards a new linear accelerator [111, 112].
Reutte – Füssen cross-border heart centre: The heart centre was jointly funded by the hospitals in Reutte and Füssen. Payments made by Füssen Hospital were based on the expected percentage of treated patients in Austria. Health insurance funds of both countries (i.e. TILAK, AOK) deal directly with the reimbursement of medical costs of Austrian patients at the heart centre [112]. **+ Direct reimbursement of medical costs**

Administrative dimension

Cerdanya Cross-Border Hospital: A technical committee of health experts was established to monitor the construction project and a steering group was established **+ Establishment of project-specific working groups for project implementation** for decision-making. In 2005, a competitive tender process for the architecture of the new building was launched [109, 110].

Operational dimension

Braunau – Simbach European clinical centre: The joint coronary angiography centre and the trauma department were used by a broader population, providing potential for economies of scale [112]. **+ Joint use of infra-structure**

Cerdanya Cross-Border Hospital: The hospital covers an area of 19 000 m^2. The following equipment is available: 60 beds, seven emergency care beds, two surgical theatres, one delivery room, two laboratories, five outpatient spaces, 10 spaces for haemodialysis [109, 110].

Füssen–Reutte: An ultrasound scanner was provided by the hospital in Reutte and is located at the heart centre in Füssen [112].

Medical dimension

Information not available

Case Study 4: Cross-border care collaboration in the field of *Knowledge Sharing and Management*

Legal dimension

ACCORD: EU Directive 2010/53/EU and the Action Plan on Organ Donation and Transplantation (2009-2015) constituted the legal background to the Joint Action. The action plan identified 10 priority actions [129]. **+ EU Directive basis for Joint Action**

JASEHN: The goal of interoperability and standardisation depends heavily on the legal framework, which was processed in one work package (Task 6.2 – Development of legal interoperability in a cross-border context'). The PARENT Joint Action shares the same goal of interoperability, which led to a collaboration of both Joint Actions, for instance in the field of eHealth standards [131].

+ Goal = implementa-tion of Council Recom-mendations and Com-mission Communication on rare diseases **RD-Action:** The Joint Action implements the priorities that were identified in Council Recom-mendation 2009/C151/02 and Commission Communication (COM 2008 679) on rare diseases. It builds on the former Orphanet and EUCERD Joint Actions [132].

Legal dimension
Radiotherapy in Flensburg: The initial agreement between the county of Southern Jutland and the Malteser St. Franziskus Hospital was for the treatment of 100 Danish cancer patients in Southern Jutland according to the Danish guidelines. In 2001, a formal agreement was signed to ensure treatment of 300 Danish patients and the scope of health services was increased according to the needs of patients. The municipality of Southern Denmark extended the contract twice for 5 years (2006-2011 and 2011-2016) and made cancer treatment at the Malteser St. Franziskus Hospital available to all Danish patients and not just to patients living in Southern Jutland.[111]
Putting Patients, Clients and Families First: The Ballyconnell Agreement signed in 1992 formalised the Cooperation And Working Together (CAWT) partnership for health improvements and social welfare in the border areas of the Republic of Ireland and Northern Ireland. The partnership is signed by the North Eastern and North Western Health Boards (IE) and the Western Health and Social Services Board (UK). Putting Patients, Clients and Families First is a programme under CAWT [115].

Financial dimension
ACCORD: The Joint Action was co-funded by the EU (60 %) in the framework of the 2008-2013 EU Health Programme. The total budget was EUR 2 435 123 [131].
- No measurable benefits   **EUnetHTA**: The Joint Action programmes are supported by funding from the EU in the framework of the EU Health Programmes. Through its activities, EUnetHTA strives to provide added value to healthcare systems at the European, national and regional level. By avoiding duplications of assessments, resources can be saved [130]. However, the realised efficiency gains of EUnetHTA are hard to monetarise.
JASEHN: 60 % of the total budget of EUR 4 million is co-funded by the 2014-2020 EU Health Programme. National authorities supplement the funding. As a general goal the project partners expect savings due to improved use of healthcare resources [131].
RD-Action: The project is co-funded by the 2014-2020 EU Health Programme. It is the successor to the EUCERD Joint Action (March 2012 to November 2015). Budget constraints of national health systems to address rare diseases are eased by the collaboration.
PARENT: The budget was EUR 3.4 million and the project received EU co-funding of 60 % in the framework of the 2008-2013 Health Programme [133].
PaSQ: The Joint Action on Patient Safety and Quality of Care (PaSQ) was co-funded by the 2008-2011 EU Health Programme. The overall project costs amounted to EUR 5 850 148, with a co-funding share of EUR 3 496 164 [134].
Radiotherapy in Flensburg: Danish clinical and quality guidelines apply to the services provided by the Flensburg Malteser St. Franziskus Hospital. In order to facilitate reimbursement of the health services used, Belgian hospitals opened bank accounts in France. **+ Expansion due to increased patient numbers** Although treatment is reimbursed thorough a diagnosis-related group (DRG) rate in Denmark, treatment provided in Flensburg is reimbursed on a fee-for-service basis, which appeared to be 10 % lower than the Danish DRG rate. Due to the increased

Financial dimension
number of patients treated, the Malteser St. Franziskus Hospital needed to invest in expansion of the radiotherapy department in 2001, costing EUR 2.35 million. Denmark provided a share of EUR 500 000, which was used to finance a new linear accelerator. A second expansion of facilities cost EUR 3 million and was financed by the Malteser St. Franziskus Hospital and local and national subsidies. [111]
HoNCAB: HoNCAB was co-financed by the 2008-2013 EU Health Programme and had an overall project budget of EUR 1 346 306. [136]
TRISAN: The total funding for the 2014-2020 period amounts to EUR 801 916, with EUR 367 750 (46 %) being co-funded by ERDF [115].
INTERSYC: The total funding was EUR 624 362, with a co-funding share of 85 percent (EUR 530 708) [115, 138].
Putting Patients, Clients and Families First: The total funding was EUR 30 000 000, with 75 percent (EUR 22 500 000) being co-funded by the EU Interreg IV A programme [115, 139]. Economies of scale were capitalised by bundling 12 individual projects.

Administrative dimension
ACCORD: The Joint Action consisted of 23 associated partners under the leadership of the Organización Nacional de Trasplantes (ONT, Spanish National Transplant Organisation). In addition, 10 organisations and institutions participated as collaborating partners (e.g. WHO and the European Hospital and Healthcare Federation (HOPE)). ACCORD consisted of seven work packages, including the three core work packages, namely living donor registries, intensive care units and donor transplant coordinators, as well as twinning on organ donation transplantation [129].
EUnetHTA: EUnetHTA has been organised through the establishment of a collaboration project in 2009 and three Joint Action programmes (2010-2012, 2012-2015 and 2016-2020). The EUnetHTA Assembly, which consists of one representative from each of the partner organisations, serves as the major governing and policy-making body. The collaboration has grown to 78 organisations from 29 countries. The executive board is responsible for coordination and implementation. The EUnetHTA directorate assists the executive board (e.g. with respect to administrative and financial matters) [130].
JASEHN: The Joint Action has a total of 40 partners (25 associated partners and 15 collaborating partners) and is coordinated by the Austrian Ministry of Labour, Social Affairs, Health and Consumer Protection. The number of participating countries is 28 (27 EU members, plus Norway) [131].
RD-Action: The Joint Action is coordinated by the Institut national de la santé et de la recherche médicale (INSERM, French National Institute of Health and Medical Research) and has beneficiaries from 24 EU Member States. The project is divided into six work packages, which are supervised by an executive committee [132].
PARENT: 11 associated partners actively contributed to the Joint Action, which was coordinated by the Nacionalni inštitut za javno zdravje (Slovenian national institute of public health). The project was in close dialogue with other Joint Actions such as EUnetHTA or JASEHN [194]**.**

Administrative dimension

PaSQ: The project consisted of seven work packages. The first work package of the Joint Action was coordinated by Haute Autorité de Santé (HAS, the French National Authority for Health). HAS coordinated internal and external communication and developed European and national patient safety networks. A steering committee and executive board guided the Joint Action. HAS reported progress to the Patient Safety and Quality of Care working group (PSQCWG). Furthermore, national platforms organised around National Contact Points have been set up.[135] Further work packages (WP 2-WP 7) were led by institutions from other European countries [134].

Radiotherapy in Flensburg: The collaboration started in 1998 and included a quota of 100 Danish cancer patients being treated per year at the Malteser St. Franziskus Hospital initially. Patients could opt between treatment in Denmark or in Flensburg. Cancer patients in Southern Denmark used to travel long distances to the nearest hospital with an oncological department. In 2001, the quota of patients treated was increased to 300. Besides contract renewal, Danish authorities engaged in improving treatment options for cancer patients in Denmark. [111]

HoNCAB: The project was conducted from 2012 to 2015 and included nine participating EU Member States (Belgium, Germany, France, Greece, Italy, Malta, Austria, Slovenia and Hungary). The Azienda Ospedaliera Universitaria Integrata Verona (AOUI Verona, Hospital Trust of Verona) coordinated the project. [136]

TRISAN: The project preparation phase, during which partners and funding were found took 18 months. The project is led by the Euro-Institut (DE) and the project partners are the Grand-Est regional health authority (FR), the Ministerium für Soziales und Integration Baden-Württemberg (DE), the Regierungspräsidium in Karlsruhe, and the Ministerium für Soziales, Arbeit, Gesundheit und Demografie Rheinland-Pfalz (DE), the Bâle-Ville, Bâle-Campagne and Argovie and the Swiss Confederation (CH).
The project drew on a long history of cross-border collaboration and therefore identified several barriers to the administrative systems of the neighbouring countries, such as different reimbursement schemes. TRISAN therefore emphasised the importance of openness to adopting new administrative systems [115].

INTERSYC: The project was set up by the `The smile of the Child´ organisation, which is one of the leading institutions in developing tools such as the missing child hotline, which are highly relevant to the project. Six partners were involved, including the regional health inspectorate of Kardzali (Bulgaria). [115, 138]

Putting Patients, Clients and Families First: The project facilitates administrative coordination between the Ministries of Health in both countries. By managing 12 individual projects via one central project, the administrative burden for each project could be reduced [115].

Operational dimension

ACCORD: To improve the information systems within Member States, the status quo was analysed by conducting an observational study at participating hospitals across Europe on patients that had died of a devastating brain injury. After data collection by means of patient questionnaires and data analysis, a toolkit was developed and implemented. That comparative analysis identified room for improvement of the management and information systems and thereby fostered

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Operational dimension
knowledge transfer. A series of recommendations for increasing collaboration between donor transplant coordinators and intensive care professionals were presented [195].
EUnetHTA: Sharing HTA knowledge is the core feature of this Joint Action. The cooperation supports Member States in receiving HTA-relevant information that is objective, reliable, timely and comparable. That is pursued by, for instance, publishing guidelines that help partners to build capacity. Another approach is the development of tools to assist the performance of joint assessments. Structured core HTA information is to be produced collaboratively. The cooperation fosters the re-use of regional and national HTA reports and activities in order to avoid duplication of assessments [130].
JASEHN: Besides strategic cooperation, the Joint Action functions as an operational platform for cooperation between Member States. The platform **+ eHealth network** provides guidance on the implementation, deployment and use of eHealth services throughout national healthcare services alongside the four objectives of interoperability, monitoring and assessment of implementation, exchange of knowledge, and global cooperation and positioning. eHealth network meetings are therefore prepared and dialogue is conducted with relevant stakeholder groups and standardisation organisations [131].
+ Orphanet database **RD-Action:** In general the RD–Action expands and consolidates the contributions from the former Joint Actions on rare diseases. It aims to improve the two-way flow of information between the national and European levels to support knowledge transfer. The further development of the Orphanet database and the codification of rare diseases in health information systems are also **+ Codification of rare diseases** considered major operational goals. The publication of an annual `State of the Art´ report will be continued [132, 196].
+ Participation of physicians in professional societies of the collaborating state **Radiotherapy in Flensburg**: Knowledge transfer is facilitated by the participation of the chief physician of the Malteser St. Franziskus Hospital in Danish professional (specialist) societies. At the same time, Danish physicians from related fields are members of the 'Tumorzentrum Flensburg' (Flensburg tumour centre), which is an interdisciplinary cooperation network between physicians of the Southern Jutland-Schleswig region, the city of Flensburg and the counties of Schleswig-Flensburg and Northern Friesland. The chief physician of the radiotherapy department of the Malteser St. Franziskus Hospital is the network leader [111, 112].
PARENT: A pilot registry (www.parent-ror.eu, `registry of registries´) was released in November 2013. It maps patient registries across Europe. The tools included were registry benchmarking, registry quality assessment and registry interoperability readiness assessment. Methodological guidelines (`hands-on´ advice) for endorsement by the **+ Development of methodological guide-** eHealth network were developed with the aid of several workshops [133].

Operational dimension
PaSQ: For the purpose of exchanging good organisational and safe clinical practices, data were collected and existing data were reviewed. Exchange was facilitated **+ Joint database for knowledge exchange** by setting up a joint database for good organisational and safe clinical practices. Information exchange and networking were facilitated by organising exchange events. Both national and international experiences were considered [135].
HoNCAB: The main objective of the project was the establishment of a pilot network for participating hospitals to foster information exchange and knowledge sharing on administrative issues related to cross-border healthcare and a patient feedback system on patient satisfaction with reimbursement of treatment received and quality of care. Another outcome of the project was the development of recommendations for organisational requirements of reimbursing cross-border health services [136].
TRISAN: By developing a toolbox, the project offers advice and assistance with the organisation of cross-border healthcare projects. The project management tool includes checklists, practical advice and methods for all phases of a project, and provides information about typical problems that have been experienced in the past. Accordingly, the lessons learnt should facilitate the success of new projects [137]. However, the toolbox cannot be accessed online as of December 2017.
INTERSYC: The project encouraged the use of the European missing child hotline (116 000), particularly on the Bulgarian side, as well as a coordination platform combining the European Child Alert Automated System (ECAAS) and the Amber Alert system. Mobile medical units were used for prevention activities. [115, 138]
Putting Patients, Clients and Families First: The project published a quarterly newsletter in order to provide regular progress reports on all activities and fostered the spread of best-practice examples across the region [115, 139].

Medical dimension
ACCORD: The Joint Action identified recommendations for improvement of the coordination of organ donations. For instance, Work Package 5 stressed the importance of cooperation between intensive care units and donor transplant coordinators [195]. Work Package 6 provided information about the Dutch system with respect to the training and certification of procurement surgeons for all countries [197].
EUnetHTA: The promotion of good practice in HTA methods and processes is designed to facilitate medical treatment using HTA [130].
RD-Action: The classification of rare diseases and alignment with other terminology (e.g. ICD10 or SNOMED CT) played an important part in tackling rare diseases (WP 4). The provision of a directory of expert services in every Member State, such as clinical laboratories of biobanks, was another goal of WP 4 [132].
PARENT: Patient registries are invaluable for assessing clinical performance, conducting HTA or assessing policy implications. Efforts of the Joint Action to provide guidelines for patient registries **+ Common guidelines for patient registries**

Medical dimension
are therefore very important for improvements in cross-border healthcare [194].
PaSQ: Safe clinical practices were selected via a procedure that emphasised validation and transferability.
+ Shorter travel distances for patients = added value **Radiotherapy in Flensburg**: Treatment of cancer patients was performed at the Malteser St. Franziskus Hospital, with follow-up in Denmark. In 2011, more than 2000 Danish patients received radiotherapy at the Malteser St. Franziskus Hospital in Flensburg. Although the national infrastructure for provision of treatment to cancer patients was improved, the added value of the collaboration came from the shorter travel distances for patients. [111]
HoNCAB: The medical dimension included a comparison of diagnosis-related groups (DRGs), in particular associated tariffs [136].
INTERSYC: In order to improve child health, particular focus was placed on prevention. Mobile medical units, including a unit specialising in ophthalmology and a `Hippocrates' unit, which had audiology, cardiology, paediatrics and dentistry departments, visited villages and assisted local physicians. Those prevention activities identified cases of child abuse or neglect and were thus extended to the psychological and social spheres [115, 138].
Putting Patients, Clients and Families First: Between 2008 and 2014, around 50 000 people benefitted from the services and care offered. Marginalised groups could also be reached (approximately 4 000 people) by projects aimed at reducing health inequalities in the same period [115].

Case Study 5: Cross-border care collaboration in the field of *Treatment and Diagnostics*

Legal dimension

Cerdanya Cross-Border Hospital: The hospital management decided to use open tenders for procurements (e.g. for medical equipment). As a result, French companies also had the option to bid for equipment supply contracts. Accounting information needs to fulfil criteria under European law. If there are no applicable rules, then Spanish law applies. An office specifically dealing with the judicial process of French neonates born at the Cerdanya hospital was established [109, 110].

+ Judicial office handles legal aspects of cross-border births

Braunau – Simbach European clinical centre: The project is based on a lease contract between Simbach Hospital and Braunau Hospital. The appointed head of the joint internal medicine department was based on an informal agreement. The head of department was formally employed by both hospitals. The joint coronary angiography unit became a limited liability company (COR GmbH) in 2009, jointly operated by an affiliated company of the Franciscan nuns of Vöcklabruck (AT) and the municipality of Simbach (DE, 4.9 % share). Legal adjustments that would have been necessary for treating patients of both countries were not possible in the

- Diverging national strategies led to an end of joint activities

framework of the collaboration. The collaboration between Braunau and Simbach in the scope of the European clinical centre ended in 2011 because the hospital in Simbach was restructured and the Upper Austrian regional government developed and implemented a new hospital strategy [112].

Hospital collaboration in the Belgian Ardennes: In the 1990s, hospitals set up agreements to enable patients in a defined border area to access specific hospitals for specific treatments across the border. Since 1995, seven agreements have been signed between French/Belgian healthcare facilities and sickness funds [140]:

- 2002: agreement on maternity services at CH de Dinant (later also prenatal and postnatal follow-up care)
- 2004: joint agreement that grants French patients from Givet and Fumay access to care (internal medicine, obstetrics and surgery) at CH de Dinant
- 2005: bilateral framework agreement between France and Belgium aimed at providing a fixed structure, including a uniform method of implementation for local agreements with hospitals and health authorities
- 2008: the agreement on six ZOASTs (organised cross-border areas for access to care) simplified administrative access procedures for patients (harmonisation with those in their home countries. Inpatient and outpatient care were covered by the agreement
- Agreement on emergency transportation between Belgium and French hospitals

Legal dimension

+ Extension of formal agreements included an increase in the number of patients treated, expansion of services provided and joint investments

Radiotherapy in Flensburg: The agreement on treating Danish patients was signed by the Malteser St Franziskus Hospital (DE) and the county of Southern Jutland (DK). The agreement set a maximum treatment volume of 100 patients per year (later expanded to 300 patients per year) and the obligation for the treatment to comply with Danish guidelines. In 2001, the region of Southern Denmark and the hospital signed a formal contract comprising a wider range of indications, namely curative and palliative treatment for various types of cancer, and the co-financing of a second linear accelerator. In 2006, the contract was extended for another 5 years and treatment options were made available to patients from all over Denmark. With respect to documentation, all documents exchanged before, during and after treatment are in the national language of the issuing hospital to avoid liability issues [111, 112].

Teno River valley: In 2007, the secondary healthcare authorities of Finland and Norway signed a formal contract governing the use of specialist care services across the borders. The agreement targets Finnish Sami speakers and the Finnish-speaking population living and working permanently or temporarily in Norway. The agreement also governs invoicing practices. Generally, all costs are reimbursed by the referring side. The agreement further covers the language of referrals and responsibilities for translations [117].

+ … which is not perceived as an obstacle. Treatment of patients is the priority

- Practitioners are not fully aware of the specific formal details of the agreement…

+ A formal, legally non-binding agreement allows for flexible arrangements

Aachen – Maastricht university hospital collaboration: Collaboration started in the 1990s, when the MUMC+ (Maastricht Universitair Medisch Centrum+) and the UKA (Universitätsklinikum Aachen) first signed a contract. Based on that contract, MUMC+ referred patients to UKA for paediatric heart surgery, positron emission tomography scans and Gamma Knife operations. In 2004, the hospitals signed a collaboration agreement covering both patient care and research. Healthcare provision, training, research and teaching, joint management of medical departments, procedures for staff exchange(see Case Study 1), liability and insurance are, in particular, governed by the agreement. It provides a flexible framework for collaboration but is not legally binding. Various types of contracts enabled professional and patient mobility [126].

Malta – UK: Since 1975 a reciprocal agreement has granted Maltese patients access to highly specialist care for rare diseases that is not available locally. In return, UK citizens who are temporarily resident in Malta and UK pensioners and workers permanently residing in Malta are entitled to free healthcare. That arrangement is separate from

+ A fixed long-term agreement governs entitlements of both parties, ensuring a win-win situation

Legal dimension
existing EU legislation [9].
Orthopaedic services in Hungary: Cross-border orthopaedic care does not build on specific cross-border arrangements between providers or clinics. Instead it is organised as medical tourism and relies on word-of-mouth and informal communication [9].
Cross-border dental care: Prior to the project start, legal requirements in Finland and Sweden were checked to ensure the feasibility of the project. The check resulted in a simple set-up, according to which Finnish patients were treated according to Finnish law and Swedish patients according to Swedish law.[141]
Telepom: For the operational implementation of the project, legal experts were consulted, especially on questions related to the cross-border context. Different regulations regarding security of personal data had to be met (i.e. national, regional) and anonymisation had to be ensured [115, 142].

Forbach – Völklingen cardiology partnership (DE/FR): In 2005, the French-German framework agreement on cross-border healthcare cooperation was signed. That was the basis for the cross-border agreement that was signed in March 2013 by seven partners, including the German and French regional health authorities, the health insurers and the healthcare providers concerned [143].

> - **Differences in the payment and reimbursement system slowed down implementation of the agreement**

IZOM: Although the first agreement on cross-border care had already been signed in 1997, two German contractors terminated the collaboration agreement in 2016, mainly due to imbalances in healthcare utilisation caused by an increasing number of Belgian patients being treated in Germany [198]. Partly in response to the withdrawal

> - **Long-term project ends in 2017 due to withdrawal of two German partners**

of the two German partners, the Belgian Ministry of Social Affairs and Public Health evaluated the project in 2016. The decision was made to end the project by the end of 2017 following a transition period. From 1 January 2018, the Euregio will revert to the application of EU law (i.e. coordinating regulations and Directive 2011/24 on patient rights [115, 199].

Financial dimension

Füssen – Reutte: The costs for the heart centre at Reutte Hospital were shared by Füssen Hospital and Reutte Hospital. The expected percentage of treated patients from Austria served as a basis for cost measurements. No funding or involvement of the EU was evident. Due to the low evidence base, no hard figures on costs and funding can be provided.

> - **Low level of publicly available information on the project**

Financial dimension

Cerdanya Cross-Border Hospital: Estimated annual operating costs are EUR 17.5 million (60 % covered by Catalonia, 40 % covered by France). To become viable, 5 500 hospital admissions were necessary [109, 110].

Table 2: Estimated operating costs of Cerdanya Cross-Border Hospital

Category	Cost (million Euros)
Purchasing	3.845
Outsourcing services	1.350
Taxes	0.040
Human resources	10.130
Financial expenses	0.025
Exceptional expenses	0.025
Depreciation and amortisation	2.000

Source: [109]

The agreement on a global budget is set for 5 years. The financing and the tariffs need to be renegotiated after the first operation period. Due to the remote geographical location of the Cerdanya Cross-Border Hospital, remuneration is above average.

Braunau – Simbach European clinical centre: By reallocating medical services from Braunau Hospital to Simbach Hospital, enlargement costs of EUR 3.6 million could be saved. The financing of healthcare services was an issue, as fees for German patients treated at Braunau Hospital were almost twice as high as for Austrian patients. The increased fee was justified as the official tariff included not only costs of the treatment, but also compensation for costs that would have been covered by taxes of the regional Austrian health fund. Costs of patient transportation were estimated at about EUR 120 000 per year, with contributions for recumbent patients amounting to EUR 30 000 of that [125].

Hospital collaboration in the Belgian Ardennes: Under the 2005 agreement, the financing scheme for French healthcare facilities was mainly based on prospective budgets. As a result, there were few incentives to increase competition, quality of services and efficiency [140].

Radiotherapy in Flensburg: The expansion of facilities at the hospital in Flensburg was subsidised by the Federal State of Schleswig-Holstein (DE) (EUR 2.35 million). Furthermore, Denmark provided co-financing of EUR 500 000 towards a new linear

+ Defined reimbursement mechanism

accelerator. In total, expansion and modernisation of facilities cost EUR 3 million. The reimbursement for Danish cancer patients is based on a fee-for-service scheme, which the region of Southern Denmark covers. According to Augustin et al. (2013), prices in the German hospital are 10 % lower than the Danish DRG (diagnosis-related group) rates [111, 112].

+ Creative cost allocation solution

Teno River valley: Different administrative services in the two countries cause invoicing difficulties. As a consequence, Norwegian private GPs register Finnish patients as Norwegian and invoice the Norwegian system. In addition, patients report difficulties related to reimbursement for eligible travel benefits or rehabilitation grants [117].

Malta – UK: The agreement permits the referral of a quota of Maltese patients, including adults and

+ Lump sum for predefined quota

Financial dimension
children eligible for treatment, every year by the UK National Health Service. The services offered through this programme are free of charge. The number of patients requiring treatment in the UK always exceeds the agreed quota of 180 patients, so costs for additional patients are charged to the Maltese government [9].
- Partial financial subsidies of regional government to cover costs **Dialysis services in the Veneto region:** Patients with an EHIC card receive the service free of charge and the Local Health Authority invoices the national health insurer of the patient directly to claim reimbursement for the service. Patients with private insurance pay directly at the end of the sessions or receive an invoice upon returning home. Services are reimbursed according to official Italian diagnosis-related group costs. However, the payments received do not cover the full costs. The tourist service therefore receives a separate annual funding allocation from the Veneto region [9].
Orthopaedic services in Hungary: Care is financed through direct payments and patients apply for reimbursement from their health insurance (RO) [9].
Cross-border dental care: Initially, the project received co-funding from the Interreg III A Nord (EUR 100 000). Overall, the EU provided 60 % of funding, Sweden 30 % and Finland 10 %, in line with patient demand in the respective countries. Ongoing costs are covered entirely by the two countries, with 25 % funded by Finland and 75 % by Sweden. Dental treatment was free of charge for children and young adults up to the age of 20. Adults had to pay for dental health services. The clinic accepted cash payments only, in Swedish krona and invoiced Finnish patients [141].
Telepom: The project received EU co-funding (Interreg iv) of EUR 12 024 316 (of which EUR 10 088 374 was an ERDF contribution). Through the use of telemedicine services, efficiency increases and reduced costs were realised by the involved partners.
Forbach – Völklingen cardiology partnership(DE/FR): Total funding for the SANTRANSFOR project amounted to EUR 525 851 of which ERDF co-funding made up EUR 236 633 [143].
IZOM: Total funding was EUR 2 723 702, of which EUR 1 361 019 (50 %) was co-funded by the ERDF during the Interreg ii (1994-1999) and Interreg iii periods (2000-2006) [115, 199].

Administrative dimension
Cerdanya Cross-Border Hospital: Changing political agendas in the region were mentioned as a hindering factor and might have been one of the reasons for the postponement of the opening of the hospital. **- Alignment of political interests is challenging**

Administrative dimension

Hospital collaboration in the Belgian Ardennes: The Observatoire Franco-Belge de la santé[1] (French-Belgian Health Observatory) was the main driver for most of the collaboration projects. Access to cross-border care was eased by the 'Transcard'

> **+ Automation of formal requirements**

project, which enabled automatic delivery of the E112 form, which is necessary for authorisation by national sickness funds of a visit to another EU Member State for treatment [140].

Radiotherapy in Flensburg: If a patient decides to receive treatment at the hospital in Flensburg, the referring hospital checks capacity for treatment and submits all necessary documents (i.e. examination and surgical records). After treatment, the hospital in

> **+ Data exchange includes capacity utilisation and medical records**

Flensburg provides the referring hospital with a final report, including diagnosis, tumour stage and a radiotherapy record [111, 112].

Teno River valley: Healthcare professionals are not sufficiently aware of the formal agreement and its content. As a result, informal pathways may exist alongside official patient pathways [117].

> **+ Ex-ante submission of medical records**

Dialysis services in the Veneto region: Most patients' home centres send their care plan to the centre in Veneto 2 weeks before the holidays, allowing holiday dialysis to be synchronised with the patient's pre-existing care plan [9].

Cross-border dental care: As Finnish patients would be treated according to Finnish law and Swedish patients according to Swedish law, medical records of the two populations were separate at the beginning to account for the respective legal requirements. Subsequently, a new aim in the course of the project was the development of a joint administrative system to facilitate the work process.[141]

> **+ Development of joint administra-tive system to account for legal requirements of both national systems**

Telepom: In the initial phase of the project, regular meetings between the partners were crucial to develop an in-depth understanding of the health systems on either side of the border. The lack of fluctuation among the medical staff is important for the sustainability of the network – unlike the institutional committee members, they have remained in place. A concept was developed, discussed with the state representative (Mecklenburg Vorpommern) for data protection and finally agreed on [115, 142].

Forbach – Völklingen cardiology partnership (DE/FR): Agreements were made between parties at different institutional levels. An individual hospital on the German side and the regional health authority on the French side contracted with each other, reflecting differences in the organisation of healthcare provision in the two

> **- Imbalance of contract-ing parties in terms of negotiating power**

Administrative dimension

countries. Implementation of the agreement was made challenging by the differences in the organisation of the respective health systems, including the reimbursement systems of the two countries. Another challenge was the imbalance of the contracting parties (FR: Regional Health Authority, DE: SHG-Kliniken in Völklingen) [143].

IZOM: Since 2000, reimbursement has been managed using vouchers ('S2 forms', which were preceded by the *Anspruchsschein E112+*) that are issued by domestic health insurers upon application by patients. Those vouchers are then presented to foreign doctors and are accepted by foreign health insurers. Through the IZOM scheme, foreign patients are treated in the same way as patients who are living in the country in which they receive care [115].

Operational dimension

Cerdanya Cross-Border Hospital: All communication, including email communication, is trilingual (French, Catalan, Spanish). In the initial stage of operating, hospital staff forecasts amounted to 201 persons (50 doctors, 58 nurses/midwifes, 42 technical personnel, 30 management/administration/patient care, 21 other staff). In the case of primary care, the aim is equilibrium on a win-win basis for so that no party needs to fear losing patients. The hospital's internal ICT system uses three languages. It was planned to connect both ICT clinical history systems of clinical as soon as the question of data protection was resolved [109, 110].

+ Equal integration of participating partners and relevant aspects, e.g. language, ensuring a win-win situation

Braunau – Simbach European clinical centre: Based on a lease contract, two internal medicine wards (with a capacity of 29 beds and 30 beds respectively) were relocated from Braunau Hospital to Simbach Hospital. In November 2005, a surgical ward of Braunau Hospital was relocated to Simbach Hospital. As a consequence, a surgical day care clinic was set up in Simbach Hospital. A head of the joint German-Austrian department of internal medicine at Simbach Hospital was appointed by both hospital owners. The collaboration was stepped up after establishing a joint coronary angiography unit (at Simbach Hospital) in 2008.

+ Appointment of one coordinator

Due to changes in national (territorial) concepts of healthcare provision, structural reforms and strategic reorientation, the collaboration ended in 2011. Major stakeholders in the collaboration projects were individual hospital managers, regional authorities, Bavarian sickness funds, and Austrian and Bavarian ambulance services and shuttle/taxi services responsible for patient transport. Recumbent patients were transported by the Austrian/Bavarian ambulance services, while sitting patients were transported by a local shuttle/taxi service. Patient transportation was coordinated by an emergency dispatch centre in Ried (AT).

- Termination due to conflicting political interests

In order to avoid problems with social insurance legislation when seconding Austrian health professionals to Simbach Hospital, Austrian health officials insisted that Austrian patients be treated by Austrian health professionals and according to Austrian safety standards only. Accordingly, a rotation system between the hospitals was established [125].

Operational dimension

Hospital collaboration in the Belgian Ardennes: Besides patients, the stake-holders concerned included French and Belgium GPs and inpatient physicians, Belgian sickness funds, French social health insurance funds, French voluntary health insurance, Belgian and French hospitals, and French and Belgium public authorities.

+ Joint access to medical records

With respect to communication and data transfer, French GPs have a separate phone number to connect directly to the hospital services and direct electronic access to patients' files. French social health insurance funds have implemented ICT equipment to manage the bills of foreign patients [140].

Radiotherapy in Flensburg: Depending on the type and stage of the tumour, radiation therapy is primarily performed as an outpatient service; the follow-up is performed in Denmark. Treatment is facilitated by the fact that the majority of health personnel speak both German and Danish [111, 112].

+ Bilingual personnel

- Language barriers

Teno River valley: Language differences (Finnish, Norway, Sami dialects) pose a challenge in terms of cross-border day-to-day treatment. Sami-speaking people have the right to an interpreter. However, interpreters are lacking in this region. It is estimated that around 80-100 patients use Norwegian healthcare services per year, which a fairly significant number of cases given the population density. Patient flows are uneven, with more Finnish patients accessing Norwegian healthcare services than vice-versa [117].

Malta – UK: Communication is further aided by the presence of a single point of contact in Malta and the sharing of relevant medical information through electronic or physical exchange of detailed patient summaries [9].

+ Exchange of patient summaries

Dialysis services in the Veneto region: Tourist dialysis services have been put in place at the main hospital in Jesolo, and at an outpatient centre in Bibione (six beds). In Bibione the tourist services run from May to September. In Jesolo the centre is open throughout the year for local residents and capacity is increased for tourists during the summer months. During the tourist season, an external company is subcontracted to provide the package of services for the two centres [9].

+ Subcontracting to cover patient demand

Orthopaedic services in Hungary: According to a study of three clinics, foreign patients account for 4-10 % of annual patient volumes. The majority are seeking elective orthopaedic surgery, such as knee and hip replacements [9].

Cross-border dental care: The project planning phase lasted 2 years (2002-2004) and was initiated under the Interreg Community initiative. Practical implementation started in 2005. The main objective was to provide sufficient dental care to the 1 600 inhabitants of the geographically isolated and scarcely populated Karesuando area by pooling resources. Dental services were provided in a Swedish hospital that usually faces low availability of health professionals. The project set-up was designed to foster the recruitment of

+ Recruitment of qualified personnel

Operational dimension
relevant healthcare personnel to provide the respective services. A follow-up project in 2005 ensured continuation of dental health service provision. In order to ensure adequate operational procedures, treatment quality standards were updated. One of the main incentives was the geographical isolation of the region. The closest hospital in Finland required an 80 km drive, while the closest hospital in Sweden was 180 km away. [141]
Telepom: For videoconferencing and meetings, 52 videoconferencing systems are available at 14 hospitals (consisting of 16 large meeting rooms, 12 small meeting rooms, 23 clinical wards and doctor's offices and one mobile video station). Translators are used for videoconferencing translators. They not only translate from one language to another, but for reasons of cultural differences also draw attention to different perceptions and ways of presenting information. The telemedicine systems documented information fully, including gathering, archiving and dissemination of data. That was made possible by communicating via secure data links only. Only registered organisations could have access to the telemedicine systems [115, 142].
Forbach – Völklingen cardiology partnership (DE/FR): The cooperation only extends to certain border municipalities, i.e. to a rather restricted area. Mobile emergency and intensive care services (SMUR) for heart attack patients were optimised in Forbach. Other operational efforts included language courses in order to overcome language barriers [143].
IZOM: Form E112+ is granted for periods of between 3 and 12 months. The medical specialties for which patients intend to travel are indicated on a case-by-case basis. GPs, physiotherapists and dentists are not covered by the IZOM scheme [115].

Medical dimension
Cerdanya Cross-Border Hospital: Stakeholders of both countries attended meetings to learn how the two systems work, to decide on medical equipment to purchase and to harmonise medical protocols. **+ Ex-ante knowledge exchange** Regarding pharmaceuticals, it was agreed that generic products under Spanish law would be used. The objective of Cerdanya Hospital is to offer a full array of health services as provided in both national health systems. For various services it was agreed that there would be one protocol (either Catalan or French) [109, 110].

Medical dimension

Braunau – Simbach European clinical centre: The number of German outpatients treated at Braunau Hospital increased steadily and amounted to 2 400 in 2009 (cf. 1 535 in 1998). There are no numbers available for Austrian patients. For the joint coronary angiography unit, around 850 examinations were estimated for the first year. However, examination numbers far exceeded that forecast. The establishment of the joint coronary angiography unit enabled former disparities with respect to mortality after a heart attack (30 % higher risk for the Austrian rural population in that area) to be reduced [125].

Table 3: Overview of examinations at the Braunau – Simbach European clinical centre, 2008 and 2010

	2008	2010
Total examinations	2 137	2 219
Austrian patients	58.2 %	60 %
German patients	41.8 %	40 %

Source: [125]

Individual solutions, such as a dual reporting system, were develop to account for differences in care documentation requirements, hygiene regulations, regulations for obtaining blood products and diseases subject to registration.

+ Dual reporting system to meet national requirements

Hospital collaboration in the Belgian Ardennes: The project includes monitoring of patient flows. The following tables show the number of French women giving birth and French patients treated at the hospital [11].

Table 4: Number of births by French women

	2007	2008	2009	2010	2011
No. of births	114	92	131	149	137

Source:[11]

Table 5: Number of French patients treated and number of treatments

		2009	2010	2011	2015
Patients treated	ZOAST	3 468	5 112	6 055	Approx. 2
	Other	-	-	-	
Outpatient care units	ZOAST	8 837	12 833	15 316	
	Other	1 778	3 374	294	
Hospitalisations	ZOAST	2 634	3 700	4 073	
	Other	94	153	106	

Hospitalisations include day hospitalisation

Source:[11]

Recent numbers show that in 2015 about 20 000 French and Belgium patients received treatment on either side of the France-Belgium border [115].

+ Agreement on applicability of Danish standards and necessary knowledge exchange

Radiotherapy in Flensburg: Both parties agreed that treatment would comply with Danish clinical and quality guidelines. Furthermore, it is ensured that physicians in Flensburg have a good understanding of the health systems, quality standards and treatment guidelines of both countries [111, 112].

Medical dimension
Teno River valley: Secondary healthcare services covered in the formal collaboration agreement are ambulatory cardiology, audiology, child and adolescent psychiatry and obstetrics. Between 80 and 100 Finnish patients use the offered health services in Norway per year. [117].   **+ Clearly defined scope of health services provided**
Aachen – Maastricht university hospital collaboration: To optimise capacity, MUMC+ patients undergo open heart surgeries in UKA and a MUMC+ plastic surgeon operates occasionally at UKA [126].
Malta – UK: A shared care approach is used to ensure continuity of care for patients, meaning a model of integrated care delivery based on collaboration between Maltese and UK health professionals. When patients arrive in the UK they follow the same care pathways as NHS (National Health Service) patients and are managed according to the same protocols and procedures [9].   **+ Applicability of UK procedures**
Telepom: The telemedicine initiative was developed in 2001 on the German side of the border and has gone through some enlargements. Today (2017), the network covers telemedical services in the fields of pathology, radiology, mammography, urology, cardiology, oncology, ophthalmology and stroke care, as well as videoconferencing [115, 142].
Forbach – Völklingen cardiology partnership (DE/FR): The cooperation only involves diagnoses of acute ST+ infarction. Initial care is provided in Völklingen. From there, patients are transferred to Forbach after 3 days on average. Efforts were made to develop a cross-border medical team in order to incentivise young specialists to work in the cardiac intensive care unit in Forbach. Medical knowledge and exchange of good practices between health professionals are intended to be fostered via the organisation of training placements or seminars [143].
IZOM: In 2014, 15 807 S2 forms were issued in Germany, indicating the number of Belgian patients in Germany, while 1 281 forms were issued for healthcare in Belgium indicating mostly Dutch and German patients. That imbalance of patient flows was more pronounced in certain medical specialties, such as paediatrics [115, 143].

Annex V: Overall characteristics of the 'grey' literature publications

Table A4: Overall characteristics of the 'grey' literature publications

Characteristic of the publication	Number of publications (%)*	Publication number
Year of publication		
2017 – 2012	17 (61%)	6; 8; 9; 11; 12; 15-24; 26-28
2007 – 2011	11 (39%)	1-5; 7; 10; 13; 14; 17; 25
Origin of the study		
EU	22 (79%)	1-4; 6-14; 16; 17; 20-27
Ireland	1 (4%)	3
Belgium	6 (21%)	3; 4; 7; 9; 14; 28
France	4 (14%)	3; 7; 8; 9
Netherlands	6 (21%)	4; 8; 9; 14; 15; 28
Luxembourg	2 (7%)	8; 28
UK	2 (7%)	8; 18
Italy	1 (4%)	9
Germany	1 (4%)	9
Other	4 (14%)	1; 5; 19; 22
Type of publication		
PPT presentation	3 (11%)	7; 26; 27
Report	6 (21%)	10-12; 17; 20; 22
Book	2 (7%)	1; 24
Web article	10 (36%)	3-6; 9; 15; 18; 19; 23; 28
Legal document	2 (7%)	16; 25
Journal article	5 (18%)	4; 8; 13; 14 21
Other	1 (4%)	2
Publication objective		
To address reasons for fraud	3 (11%)	1; 14; 22
To address consequences of fraud	6 (21%)	3; 7; 11; 13; 17; 18
To discuss fraud mitigation	10 (36%)	4; 9; 12; 16; 17; 19; 20, 22; 23; 28
To give an overview of fraud and risks involved	10 (36%)	6; 8; 10-13; 15; 20; 22; 24
Other	6 (21%)	2; 5; 21; 25-27
Fraud cases/patterns		
- what? - the type of fraud;	21 (75%)	1- 5; 7-9; 11-17; 19- 21; 24; 26; 28
- where? – healthcare areas;	17 (61%)	3-5; 7-9; 11-16; 19- 21; 24; 26
- who? – actors involved;		
- how? – fraud mechanism;	21 (75%)	1- 6; 8; 9; 11-17; 19-21; 24; 26; 28
- why? – contributing factors	17 (61%)	2; 4; 5; 8; 9; 11-17; 19-21; 24; 26
	13 (46%)	1-5; 8; 9; 12-15; 24; 28
Measuring fraud in a cross-border context		
Scale	12 (43%)	3; 7-9; 11; 13; 15; 16; 18; 22; 26; 28
Fraud mitigation		
- Fraud mitigation mechanism proposed	16 (57%)	2-4; 6-8; 10; 12; 16-19; 22; 24; 26; 28
- Fraud mitigation mechanism implemented	14 (50%)	2; 3; 8; 10; 12; 13; 15; 20; 21; 23; 24; 26-28

* One publication can be listed in more than one category, the sum of the number of publications can exceed the total number of 28 and the sum of percentages in brackets can exceed 100% (28 publications = 100%).

Source: Maastricht University

Publications included in the review:

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14	Depraetere, J., & Cylus, J. (2011). Cross border shopping for medicines in Belgium and The Netherlands. Eurohealth, 17(4), 19-21.
15	ZN. (2017). Toelichting persbericht controle en fraudebeheersing 2016. Retrieved from ZN: https://assets.zn.nl/p/32768/Toelichting%20persbericht%20controle%20en%20fraudebeheersing%202016.pdf
16	European Commission. (2012). Laying down measures to facilitate the recognition of medical prescriptions issued in another Member State. http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32012L0052
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Annex VI: Overview of the Joint Action on Patient Safety and Quality of Care (PaSQ)

The European Network on Patient Safety and Quality of Care (PaSQ) was a European Joint Action Project between April 2012 and March 2016 (no-cost extension between March 2015 and Mach 2016) initiated within the EU Health Programme 2008-2013.

Its aim was to strengthen cooperation between EU Member States, international organizations and EU stakeholders on issues related to quality of health and patient safety especially focusing on patient involvement through cooperation and networking. This was planned to be achieved by sharing knowledge, experiences and good practices.

The main outcome was supposed to be the consolidation of a permanent network for Patient Safety.

Annex VI offers a list of institutions involved in the PaSQ project. At the time of the creation of this report 60 involved institutions were listed as PaSQ partners on the PaSQ website. All European Member States were represented during PaSQ. The coordinating institution was Haute Autorité de Santé PaSQ.

Table A5: PaSQ Work packages

Classification	WP#	Work package
Horizontal work packages	1	Coordination of the JA
	2	Dissemination of the JA
	3	Evaluation of the JA
Core work packages	4	Patient Safety Good Clinical Practices
	5	Patient Safety Initiatives Implementation
	6	Quality Healthcare Systems Collaboration in the EU
	7	Network Sustainability

Source: [28]

Table A6: PaSQ Deliverables

#	Deliverable	Content
1	Report of good clinical practices/ solutions in PS	PS good practices implemented at clinical level in MS identified according to predefined criteria.
2	PS and QC good practices exchange platform	Web-based platform for sharing good practices and solutions and related aspects of QC including patient involvement in MS.
3	PS good practices implementation	Tested implementation tool box for transferable and assessed PS good practices.
4	Report on Quality Management Systems in MS	Analysis of QMS in MS, stakeholders' perspectives, selection of good transferable practices focused on quality improvement. EU network of national and regional organisations responsible for QMS and basic principles on QMS in MS.
5	PS and QC network	A voluntary EU network of MS organisations involved in improving PS and QC involving EU relevant stakeholders.
6	Sustainable collaboration	A report analysing MS needs in the field of PAS and QC. The report proposes a work plan to establish a sustainable network of relevant MS institutions for voluntary collaboration on PS and QC involving relevant EU stakeholders and necessary tools for the future.
7	Communication tools	Logo, newsletter, website, communication plan, public events and presentations at conferences.
8	Project evaluation report	Presenting results of the project audit on the deliverables and objectives per working packages.
9	Work plan	Global work plan of PaSQ.
10	Final and interim reports	Final and interim Technical and Financial reports to the EAHC.

Source: [28]

Patient Safety Good Clinical Practices (work package 4)

The aim of this work package was to facilitate the exchange of expertise at the clinical level. This was supposed to be achieved via the collection of patient safety practices (PSP) and their presentation on an interactive web tool (PaSQ Wiki platform) [28]. The collection was carried out via the designated PaSQ National Contact Points during two rounds of data collection.

Submitted practices underwent various rounds of quality control and were eventually categorised (as depicted in Figure A2) according to a conceptual framework which was developed during PaSQ [46].

Figure A2: PaSQ classification for PSP

Classification	Description of characteristics
Safe	The Patient Safety Practice was implemented and the before and after measure has documented that the Patient Safety Practice enhanced one or more aspects of Patient Safety. The before and after measure could be qualitative as well as quantitative. The before and after evaluation could originate from the same population or a case-control design.
Not Proven Effective	The Patient Safety Practice was implemented BUT the before and after measure did not show improvement in any of the measured Patient Safety problem.
Potentially Safe	The Patient Safety Practice was implemented and a before measure was established, however, no after measure exists – Full evaluation is pending. Sometimes no after measure has been established yet, because the Patient Safety Practice has not been implemented for sufficient time to be able to prove itself effective, sometimes an after measure will not be established at all.
Not Evaluated	The Patient Safety Practice was implemented BUT no before measure was made.
Not Implemented	The Patient Safety Practice was not implemented yet. This could be the case e.g. if the practice is under development or just an idea.

Source: [46]

Exchange Events presented opportunities to make use of listed expertise in the Wiki. Exchange events were defined as a "mechanism for sharing, learning and exchanging information, knowledge, skills and experiences related to Patient Safety Practices and Good Organizational Practices." It was obligatory that an event should involve at least two PaSQ partners from two different Member States and address at least one GOP/PSP. Exchange events could take place through information and discussion meetings, work-shops, webinars, study tours, databases and other information exchange, placements, courses, twinning, multiple partner collaboration [48]. PaSQ financially promoted the organization of Exchange Events as well as the participation in Exchange Events.

Related deliverables were:

- Glossary and conceptual framework (in cooperation with work package 6) [42]
- Development of questionnaires for the collection of Patient Safety Practices and Good Organizational Practices (in cooperation with work package 6)
- Safe and Transferable Patient Safety Practices at Clinical Level – An Analysis of Reported Practices [46]
- Report on Patient Involvement
- Report on WP4 & WP6 Good Practices for Exchange between Member States [48]

Patient Safety Initiatives Implementation (work package 5)

The aim of this work package was to implement safe clinical practices (SCP) in health care institutions. After establishing a common definition for safe clinical practices a

literature review was conducted to identify potential SCP. Following the preliminary list of potential SCP a questioning was organised in order to gather feedback from Member States and based on the results a final set of SCP was selected:

- WHO Surgical Safety Checklist
- Medication Reconciliation
- Multimodal intervention to increase hand hygiene compliance
- Paediatric Early Warning Scores (PEWS)

Participating Member States with a budget for the implementation of safe clinical practices were asked to recruit healthcare organizations. In order to guide Healthcare Organisations through the WP5 implementation process of SCP tool boxes were developed which included specific information on the SCP in general and on its implementation. Furthermore webinars were organized in order to train multiplicators. Baseline and endline questionnaires were the evaluatory component of WP5.

Related deliverables were:

- Concluding Report on Implementation Findings

Quality Healthcare Systems Collaboration in the EU (work package 6)

The goal of this work package was to strengthen cooperation between European Union Member States and stakeholders on issues related to quality management systems (QMS) in health care, including patient safety and patient involvement. This was to be achieved by: obtaining insight and mapping of quality management systems in Member States, sharing of Good Organizational Practices related to quality management, reflection of principles of good quality management in health care and building and/or consolidating a network of organizations for sustained collaboration in the field of quality management systems,

The Wiki, which was established during the PaSQ project was also used during WP6 to present Good Organizational Practices which were collected during the project. Member States, Regions and European Stakeholders were approached to submit Good Organizational Practices during two rounds of data collection. Submitted practices had to undergo a validation process.

Exchange Mechanism could also address Good Organizational Practices.

Related deliverables were:

- Report on Transferable Good Organisational Practices to be shared through the Exchange Mechanisms
- Report on Quality Management Systems and Quality Improvement Activities in European Member States
- Glossary and conceptual framework (in cooperation with work package 6)
- Development of questionnaires for the collection of Patient Safety Practices and Good Organizational Practices (in cooperation with work package 6)

Network Sustainability (work package 7)

The aim of this work package was to develop and support a sustained collaboration among relevant Member States institutions for voluntary collaboration on patient safety and quality of care (QC) involving relevant EU stakeholders. WP7 was supposed to propose methods to exchange information, develop synergies and coordinate activities in a sustainable manner to improve PS and QC. It will also estimate the resources necessary for implementation.

Cooperation in the following segment of PS and QC was supposed to be considered:

- Use of PS and QC indicators

- Learning mechanisms
- Rapid alert mechanisms
- Peer review of PS and QC improvement systems.

Related deliverables were:

- Report on network sustainability
- Report proposing a Permanent PaSQ Network – Years 2015+

Annex VII: List of PaSQ Partners

Table A7: List of PaSQ partners

Country	Institution	Role
Austria	Austrian Institute for Quality in Healthcare	AP
Austria	Austrian Patient Safety Platform	CP
Austria	Upper Austrian Health and Hospital-AG	CP
Austria	Ministry of Health	CP, NCP
Belgium	Federal Public Service Health, Food Chain Safety, and Environment	CP, NCP
Bulgaria	National Center of Public Health and Analyses	AP, NCP
Croatia	Agency for Quality and Accreditation in Health Care and Social Welfare	AP, NCP
Cyprus	Ministry of Health	CP, NCP
Czech Republic	Ministry of Health	CP, NCP
Denmark	Danish Society for Patient Safety	AP, NCP
Estonia	Health Board	CP, NCP
Finland	National Institute for Health and Welfare	AP, NCP
France	Haute Autorité de Santé	AP, NCP, Coordinator
Germany	German Agency for Quality in Medicine	AP, NCP
Germany	University of Bonn, Institute for Patient Safety	AP
Greece	National and Kapodistrian University of Athens	AP, NCP
Hungary	National Institute for Quality and Organisational Develop-ment in Healthcare and Medicines	AP, NCP
Ireland	Health Information and Quality Authority	AP, NCP
Italy	National Agency for Regional Healthcare Services	AP, NCP
Italy	Ministry of Health	AP
Italy	Istituto Oncologico Veneto	AP
Latvia	Riga East University Hospital	AP, NCP
Lithuania	State Health Care Accreditation Agency under the Ministry of Health of the Republic of Lithuania	AP, NCP
Lithuania	Institute of Hygiene	CP
Luxembourg	Ministry of Health	CP, NCP
Malta	Ministry of Health, the Elderly and Community Care	AP, NCP
Netherlands	Dutch Institute for Healthcare Improvement	AP
Netherlands	Netherlands Institute for Health Services Research	AP, NCP
Norway	Norwegian Knowledge Center for the Health Services	AP, NCP
Norway	Det Norske Veritas	CP
Poland	National Center for Quality Assessment in Healthcare	AP, NCP
Portugal	Directorate General for Health	CP, NCP
Romania	National School of Public Health, Management, and Professional Development	AP, NCP
Slovakia	Ministry of Health of the Slovak Republic	AP, NCP
Slovakia	Health Care Surveillance Authority	AP
Slovenia	Ministry of Health	CP, NCP
Spain	Spanish Ministry of Health, Social Services and Equality	AP, NCP
Spain	Avedis Donabedian Foundation	AP
Spain	Miguel Hernández University of Elche	AP
Spain	Instituto de Salud Carlos III	CP
Spain	Sociedad Española de Calidad Asistencial	CP
Sweden	National Board of Health and Welfare	AP, NCP
United Kingdom	NHS England	AP
United Kingdom	Department of Health	AP, NCP
United Kingdom	The Health Foundation	CP
EU stakeholder	Council if European Dentists	AP
EU stakeholder	European Federation of Nurses Association	AP
EU stakeholder	European Hospital and Healthcare Federation	AP
EU stakeholder	European Union of Private Hospitals	AP

EU stakeholder	Health First Europe	CP
EU stakeholder	Network of European Regions	CP
EU stakeholder	Standing Committee of European Doctors	AP
EU stakeholder	European Patients' Forum	AP
EU stakeholder	Pharmaceutical Group of the European Union	AP
EU stakeholder	European Health Management Association	AP
EU stakeholder	European Platform for Supervisory Organisations	CP
International Organisations	Organisation for Economic Cooperation and Development	CP
International Organisations	World Health Organisation	CP
International Organisations	Regional Office for Europe	CP
International Organisations	International Society for Quality in Health Care	CP

Source: [28]

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