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List of abbreviations

EJP RD	European Joint Programme on Rare Diseases
ERN	European Reference Network
EU	European Union
JTC	Joint Transnational Call
MOOC	Massive Open Online Course
MS	Member State
PAO	Patient Advocacy Organization
PLWRD	People Living with Rare Diseases
R&I	Research and Innovation
RD	Rare Disease
WP	Work Package
P3	Pillar 3
F2F	Face-to-Face
VP	Virtual Platform

1. Background and objectives

Already during the preparation of EJP RD programme, it was identified that education and training on rare disease research is insufficient, fragmented and geographically unequal across Europe. However, deeper situation analysis was never done worldwide. Although according to the primary 5-year EJP RD plan (Grant Agreement NUMBER 825575 — EJP RD) the overall objective of WP18 was to ensure that capacity building activities within Pillar 3 address the developing education and training needs in RD research of key stakeholders (including clinicians, researchers, patient representatives, but also paramedical sector), across different EU countries, with adaptation of EJP RD capacity building activities accordingly, and only one deliverable (D18.1. Final report on evaluation and adaptation of training programmes according to EJP RD progress of work, specific needs of EU13 countries and ERN developing needs, M60) was foreseen, following discussions in EJP RD ExCom and EJP RD PB meetings [EJPRD D1.4], an inclusion of Additional Deliverables (AD39 and AD40) into WP18 was proposed. The rationale for the development of AD39 and AD40 stems from the need for “global” measures to evaluate the overall impacts of RD research education and training (under EJPRD and beyond) that is indispensable for decision-making process on further activities (incl. the foreseen RD Partnership), required by funders, MS, and EC.

The objectives of this study were:

- To perform the preliminary evaluation of the RD research education and training programme in the EJP RD across several axes: the whole R & I pipeline: from basic research to preclinical, clinical and translational research; RD research topics; career stages from students to junior and senior investigators; multistakeholder community.
- To define the needs and gaps for the further improvement of RD research education and training at a national and European levels.
- To prioritize identified list of training needs.

1.1. Methodology

Several methodologies have been used to reach the objectives of the study. For the evaluation of the EJPRD RD research education and training programme and the

identification of gaps and needs, quantitative and qualitative investigation of EJPRD documentation (deliverables, feedback forms of trainings, meeting presentations, etc.; a list of the main 32 investigated documents presented in the Annex I: EJP RD documents used for the study), and qualitative investigation of feedbacks, discussions, proposals, reflections from multiple meetings (including EJP RD and other relevant stakeholders; a list of the main meetings presented in the Annex II: A list of the main meetings to collect feedbacks, discussions, proposals, reflections on the RD research education and training) have been used. Prioritization of the education and training activities was performed according to the following scheme:

- Compilation of all identified educational and training activities into the priority setting matrix.
- Ranking of the educational and training activities according to the:
 - Targeted audiences (advanced vs. beginner learners);
 - Maturity (readiness to provide teaching; trends and innovations for horizon-scanning educational activities (e.g., webinars) vs. matured courses for academic teaching);
 - Scopes (general or clinical RD topics vs. RD research topics; general RD research topics vs. individual RD or groups of RD);
 - Timescale (possibilities for short-term vs. long-term implementation);
 - Special focus on the underserved groups and underrepresented countries.

2. Results

2.1. Evaluation of the EJPRD RD research education and training programme

EJP RD programme for education and training on RD research is the first program of its kind and comprehensiveness in Europe and beyond, offering a revolutionary approach to the integration of education and training into the entire RD research ecosystem that is developed under the EJP RD. The main education and training activities, developed in Pillar 3 and sometimes in other Pillars (in collaboration with Pillar 3), are presented in Table 1. Importantly, many other educational activities, especially those attributed to informal, vocational training and development of transversal skills are ongoing in the EJP RD. The programme is set up to target learners of multistakeholder RD research community across R & I pipeline (from basic to

translational research and implementation into clinical practice); across RD research topics; across career stages (from beginners to advanced learners); across different geographic locations.

- **R & I pipeline:** although the whole R & I pipeline is covered, current EJP RD educational programme is more responsive to the needs of researchers of pre-clinical and clinical studies and end-users (e.g., patient representatives) as compared to basic studies. However, basic research studies are intended to prepare scientists for the further specialized studies, including RD research studies, hence their smaller role in the RD research education and training.
- **RD research topics:** the main keywords of the education and training activities in the EJP RD are presented in Table 1. The final list of RD research topic categories was identified from the keywords of existing educational and training activities and the brainstorming on any missing items:
 - Pre-clinical studies (incl. disease pathomechanisms and models, biomarkers, natural history studies, etc.).
 - Clinical trials (incl. small population trials, drug repurposing, medical devices, advanced therapies, etc.).
 - RD registries and biobanks.
 - Data science (incl. RD data management, resources, tools, FAIRification, application of AI technologies).
 - RD diagnostics and undiagnosed diseases (incl. phenotyping, innovative methodologies for solving undiagnosed diseases, omics, functional analyses, etc.).
 - Practical aspects of research (incl. ethicolegal issues, data management and sharing, patient engagement).
 - Socioeconomical studies in RD (incl. RD burden investigations, innovative care organization, implementation science, health outcomes research, etc.).
 - Social sciences and humanities (incl. equity and stigmatization, social determinants of health, psychological and social impact of RD, etc.).

EJP RD education and training programme covers the vast majority of these topics to various extent. Somewhat less covered topics include education and training on

socioeconomical studies, social sciences and humanities, preclinical studies and data science.

- **Career stages:** EJPRD education and training programme encompass the whole axis of career stages from students (MOOCs in WP16) to junior investigators (the vast majority of education and training activities in the EJP RD), and to advanced researchers (horizon-scanning educational activities, as webinars on new trends and innovations). However, although targeted audiences for any given EJP RD educational activity were pre-identified (e.g., MOOCs in the WP16 were developed as academic courses mostly targeted at students), the courses and trainings have been attended by the vast range of participants.
- **Multistakeholder community:** EJP RD education and training programme is targeted at a vast range of multistakeholder RD research community including not only researchers, but also patient representatives, clinicians, multidisciplinary team members, bioinformaticians, laboratory technicians, biostatisticians, biobank and data managers, research nurses, etc.
- **Geographical coverage:** the geographical coverage was investigated from the perspective of “teachers” (composition of the teaching faculty) and from the perspective of learners. Although educators from certain EU-14 countries (e.g., DE, FR, NL, IT, ES) dominate in the teaching faculty, composition of the learners is much more diverse and includes a vast range of not only European countries, but also learners from all the continents (especially for the on-line courses). Therefore, education and training activities may help EJP RD to achieve the global impact on RD research.

Table 1. The main education and training activities in the EJP RD.

Activity	Targeted stakeholders	Keywords
P3 WP 14.1: Training on the Orphanet nomenclature and RD ontologies for RD research. Training for Trainers; National courses.	Orphanet National Teams	Ontologies, RD codification, data management
P3 WP 14.2: Standards and quality of genetics/genomics data in laboratory and clinical research practice F2F courses.	Laboratory scientists, clinical geneticists, medical specialists, policy makers and assessors for laboratory accreditation, patient representatives with a basic knowledge of biology or medicine.	Genetic diagnostics, genomic technologies, quality assurance and management of laboratories, data analysis and management
P3 WP 14.3 Training on strategies to foster solutions of undiagnosed rare disease cases F2F courses.	Clinicians, medical specialists, rare disease patient representatives, multistakeholder community	Undiagnosed diseases, multi-omics, functional analyses, diagnostic pathways, networking and matchmaking
P3 WP 14.4: Training for biobanks and researchers/clinicians on sample data management F2F courses.	Clinicians, data managers, biobanking specialists, rare disease patient representatives	Biobanking, management of data and samples, quality assurance, ontologies, ethical, legal and social issues (ELSI), stem cells
P3 WP 14.5: Training on rare disease registries and FAIRification of data at the source F2F courses.	Clinicians, medical specialists, registry curators, database managers, rare disease patients representatives, multistakeholder community	RD registries, data FAIRification, ontologies, data management
P3 WP15.1 - ExPRESS Expert Patients and Researchers EURORDIS Summer School Pre-training and e-learning courses; F2F courses	Patient advocates, researchers	Clinical trials, Orphan drugs, regulatory and ethicolegal issues, patient engagement, pharmacovigilance, European Medicines Agency, Health Technology Assessment
P3 WP15.2 – Training for patient advocates on scientific innovation and translational research - EURORDIS Winter School Pre-training and e-learning courses; F2F courses	Patient advocates	Translational research, genetics, bioinformatics, ERNs, RD diagnostics, undiagnosed diseases, gene/advanced therapies, genome editing, patient engagement
P3 WP15.3 – Training for patient advocates on leadership and communication skills Pre-training and e-learning courses; F2F courses	Patient advocates	Leadership, self-awareness, conflict resolution strategies, authority, negotiation, networking, communication
P3 WP 15.4: Educational materials and activities for paediatric patients e-learning; F2F courses	Pediatric patient advocates	Rare diseases, patient engagement, clinical research, ethicolegal issues, informed consent/assent form, patient wellbeing, Rare Disease Day
P3 WP16 MOOC#1 - "Diagnosing Rare Diseases: from the Clinic to Research and back" On-line academic course.	Students, multistakeholder community (researchers, clinicians, patients and patients' representatives)	General concepts about RD and genetic diagnostics, genomic technologies, care pathways, patient-centeredness, undiagnosed diseases, genetic consultation, genetic research

P3 WP16 MOOC#2 - Innovative personalized therapies On-line academic course.	Students, multistakeholder community (researchers, clinicians, patients and patients' representatives)	Rare disease treatment, innovative therapies, gene & cell therapy, regenerative medicine, genome editing, personalized medicine
P3 WP16 MOOC#3 - Translational Research On-line academic course.	Students, multistakeholder community (researchers, clinicians, patients and patients' representatives)	Translational research, preclinical and clinical research, disease models, biomarkers, clinical trials, regulatory issues, ethicolegal aspects, postmarketing
P3 WP16 MOOC#4 Rare Disease Clinical Trials innovative methodologies On-line academic course.	Students, multistakeholder community (researchers, clinicians, patients and patients' representatives)	Small population clinical trials, clinical trial designs, statistical analysis
P3 WP17 Research training workshops	Clinicians, multistakeholder community	N/A
P3 WP17 Fellowships for research mobility secondments	Young clinicians, multistakeholder community	N/A
P4 WP20.5: Educational program to disseminate advanced statistical trial methodology	Clinicians, ERNs, researchers, biostatisticians, multistakeholder community	Small population clinical trials, clinical trial designs, statistical analysis, drug repurposing
P1 WP6 Webinars for JTC Call participants	JTC call applicants: researchers, patient representatives, multistakeholder community	Ethicolegal regulations, tips for writing a successful application, patient-centeredness in RD research
P2 WP10 Series of webinars on RD research resources	Users of EJP RD Virtual Platform (VP); multistakeholder community	N/A
P2 WP10 FAIRification stewards	ERN clinicians, ERN registry staff	Data management and FAIRification, RD registries
P4 WP19.1 Real-time mentoring and technical support for translational research projects	JTC project beneficiaries	Translational research, Intellectual property, ELSI regulations

2.2. Ranking and prioritization of education and training activities.

Further prioritization of the education and training activities was performed according to the following scheme:

- Compilation of all identified educational and training activities into the priority setting matrix.
- Ranking of the educational and training activities according to the:
 - **Targeted audiences** (advanced vs. beginner learners). The main targets of EJP RD education and training programme are the learners at the top of the educational pyramid (Figure 1), i.e., advanced researchers and principal investigators (especially for the horizon-scanning educational activities on new trends and innovations), and the learners at the middle layers of the pyramid

(especially for the trainings that may be further expanded and transferred through the principle of “train the trainers”).

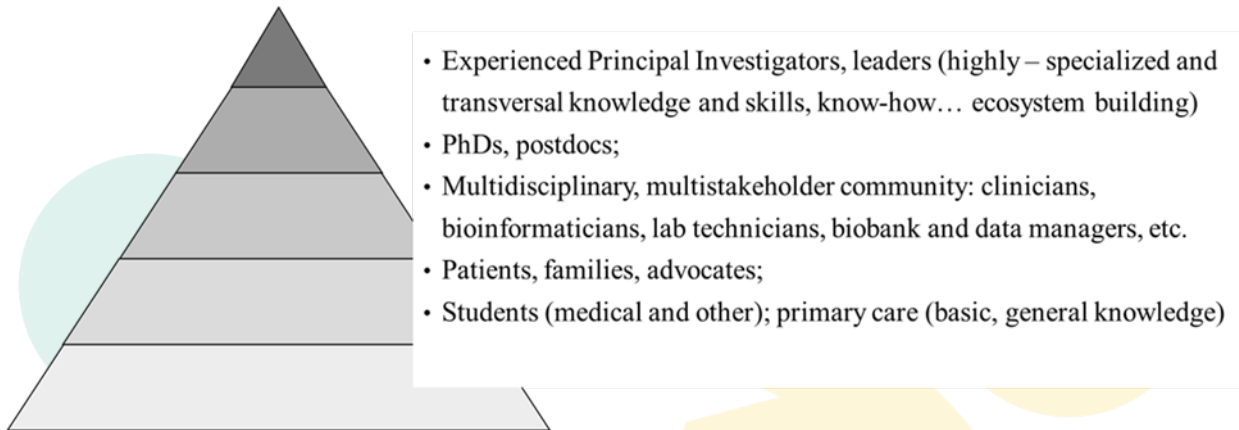


Figure 1. Principle of pyramid in rare disease education and training.

- **Maturity** (readiness to provide teaching; trends and innovations for horizon-scanning educational activities (e.g., webinars) vs. matured courses for academic teaching). Although for some topics a clear deficiency of education and training activities was identified (e.g., socioeconomical studies and social science and humanities), the lack of clear aims and objectives, contents and targeted audiences currently preclude the development of mature academic course and require horizon-scanning educational activities at first. On the other hand, a clear need was identified for the course on data science, taking the Virtual Platform (VP) of EJP RD as a basis for training and the maturity of such a course was rated high.
- **Scopes** (general or clinical RD topics vs. RD research topics; general RD research topics vs. individual RD or groups of RD). As a precondition for any education and training activities in the EJP RD was the major focus on RD research (vs. general or clinical aspects of RD that may be taken at a national or clinical – e.g., ERN – level) and the major focus on general RD research vs. teaching on individual RD or groups of RD.
- **Timescale** (possibilities for short-term vs. long-term implementation). Having in mind the limited timeframes of the EJP RD programme, the educational

activities that may be implemented in a short-term were prioritized for the novel WP18 courses.

➤ **Special focus on the underserved groups and underrepresented countries.**

Education and training of researchers from underrepresented countries may substantially increase their capacities to participate and contribute to RD research activities, hence a substantial focus to incentivize their participation in the EJP RD Pillar 3 courses through the targeted fellowships, rotation of courses and other measures. Participants from widening countries were very active users of EJP RD education and training activities (please see Additional Deliverable EJP RD AD40 “Report on training gaps identified and solutions proposed”). European-level education and training activities may also be the main or the only way to provide education for some underserved groups (e.g., patient representatives). Therefore, the efforts to increase participation of underserved groups and underrepresented countries in the EJP RD (and presumably RD partnership in the future) education and training activities should be continued.

The prioritization process resulted in prioritized education and training activities for years 4-5 in the EJP RD. The selection was further endorsed by the General Assembly of the EJP RD (through the annual planning process).

- **Course on data science, taking the VP of EJP RD as a basis for training.** The targeted audiences for the courses include both the potential contributors to the VP and the final users (researchers and multistakeholder community members), as two separate courses. The courses should include data management aspects, resources and tools of the VP, some ethicolegal aspects of data usage and sharing. Importantly, investigation of the survey of the national authorities has shown a readiness of many countries for the dissemination of these courses into the national systems (presumably through the “train the trainer” concept): in the “Third Analysis of national state of play and alignment process with EJP RD” (EJPRD D2.23), 78% (n=18) of the countries the NP/NS for RD foresees the support of data repositories and tools dedicated to RD research (Armenia, Belgium, Bulgaria, Croatia, Czech Republic, France, Georgia, Germany, Ireland, Italy, Lithuania, Luxembourg, Romania, Serbia,

Spain, The Netherlands, Turkey, UK), enacted through their implementation, their development, or both. Besides, the need for trainings on data management could be identified among JTC2020 project beneficiaries: out of 18 projects, 7 indicated -omics studies (3 transcriptomics, 1 proteomic, 1 metabolomic, 1 epigenome and 1 multi-omics). Three projects were interested in understanding molecular signatures or pathways of diseases, and 2 more projects were examining nutrition and -omics interplay in diseases. [Del10.3 Third Annual strategic report and Action plan for Pillar 2, including: Systematic surveys reports, QMS of Pillar 2 description, GDPR compliance report and sustainability planning reporting]. Further development of the courses includes:

- Definition of the targeted audiences, including the means of dissemination of information and recruitment, selection procedures for the participants, development of the feedback forms (may also be targeted at faculty);
 - Collection of the faculty and establishment of collaborations, if required;
 - Development of the course contents and methodology, including course programme, alignment with the existing courses, delineation of the proportions of theoretical and practical parts, decisions on adaptability and flexibility (e.g., proportions of fixed/constant vs. variable/adapted parts), modes of teaching (e.g., F2F vs. on-line), the process of the continuous improvement.
- **Online Workshop Ethics and regulatory considerations for Data access Committee members, developed in collaboration with the European Rare Disease Research Coordination and Support Action ERICA.** In addition to the MOOC#5 - Data and Rare diseases: ethical and regulatory considerations that will be developed in WP16 in 2023, it was decided to develop a very practical workshop on ethicolegal and regulatory aspects for DAC members of ERN registries.

2.3. Some challenges and possible solutions for the implementation of the RD research education and training programme at a national and European levels.

Some challenges to the RD research education and training programme and possible solutions have been identified during the evaluation of the EJP RD education and training programme (as “lessons learned”) and consultation with the multistakeholder community (please see the Annex II “A list of the main meetings to collect feedbacks, discussions, proposals, reflections on RD research education and training”).

How to ensure effective RD research education and training programme?

For RD research education and training programme to be effective, it has to respond to the needs of end-users. In the EJP RD, several rounds of collection of the needs through surveys of the different groups of multistakeholders (e.g., ERNs, researchers, applicants of Joint Transnational Calls) have been performed. Besides, feedback forms are continuously collected from all participants of educational and training activities and used for the continuous improvement. The needs of various groups of RD research multistakeholder community are vastly diverse (Figure 1) and should be fulfilled by a range of education and training providers and through a range of methods and forms: while general education at the base of the pyramid is mostly provided at a national level, advanced education at the top of the pyramid includes education on the trends and innovations that may only be developed through European and international collaboration and embedment of the education and training programme into the overall ecosystem of RD research. Development of teaching programmes through the high-level international collaboration ensures high quality and standardization of education, while dissemination of these teaching programmes into national level allows for adaptation to the local needs (including translation of the materials into the national languages and adaptation to the local levels of expertise and resources). This “train the trainers” concept has been applied in the EJPRD WP14.1 courses, while EJP RD WP14.4 courses were developed as 80% of constant, standardized content + 20% of flexible, adaptable to the local needs, levels of expertise and resources content. Finally, careful selection procedures have been applied in the EJPRD courses to select the participants with the highest potential and willingness to apply the gained knowledge into the practice.

How to spread RD research education and training into national systems?

The main way of spreading RD research education and training into the national systems is through the European and international organizations (e.g., ERNs, European Research Infrastructures, international professional organizations, etc.). Many of these organizations comprise the core of the EJP RD ecosystem. While fellowships are awarded for some underrepresented groups and participants from underrepresented countries in the EJP RD, the benefits may still further be increased through the support of participation at national level (that may be accompanied by the requirement for mandatory dissemination or application of the gained knowledge). Finally, awareness raising on the existing RD research and training activities is highly important for the effective up-take, and the national channels of awareness raising and dissemination should be used.

What are the most suitable educational methods and forms?

The most efficient absorption of knowledge in the EJP RD courses is achieved through a mixture of theoretical teaching and hands-on practical exercises. One of the best examples of blended training to reach the maximal effectiveness are WP15 courses that include pre-training webinars, e-learning courses (with end of unit quizzes) and an intensive training week. Short horizon-scanning webinars are most suitable for the identification of teaching aims and objectives on the innovative topics and trends; a series of such webinars on the VP Resources have been provided in the EJP RD, and some thematic webinars are included into the annual meetings (e.g., a session on the socioeconomical methods to investigate RD burden in the General Assembly of the EJP RD). During the COVID-19 pandemics, many EJP RD trainings have been adapted to the on-line format that allows to align teaching according to the pace and capacities of the learner. Besides, on-line education and training vastly expand the possibilities of participation from various geographic locations and increase global outreach of the EJP RD; e.g., 38% of WP16 academic on-line courses' participants were from outside of Europe.

3. Annexes

Annex I: EJPRD documents used for the study

EJPRD D1.4 Second report from the face-to-face ExCom and Policy Board meeting.
EJPRD D1.5 Third report from the face-to-face ExCom and Policy Board meeting.
EJPRD D1.10 Third Summary Progress Report and Annual Work Plan.
EJPRD D1.13 First Technical and Financial Report.
EJPRD D1.14 Second Technical and Financial Report.
EJPRD D2.23 Third Analysis of national state of play and alignment process with EJP RD.
EJPRD D2.25 First Report from strategic workshop with national policy makers.
EJPRD D5.3 First RE(ACT) [and IRDiRC Conference 2021] Congress report.
EJPRD D6.9 First Joint selection list of the projects to be funded JTC2019-2022 (Confidential).
EJPRD D6.10 Second Joint selection list of the projects to be funded in JTC2020 (Confidential).
EJPRD D7.3 List of funded networks in the Networking Support Scheme due at Month 21
EJPRD D9.9 First Report on the assessment of results of a 1st, 2nd and 3rd set of funded Networking events and a final general report on all funded Networking events (Confidential).
EJPRD D10.1 First Annual strategic report and Action plan for Pillar 2, including: Systematic surveys reports, QMS of Pillar 2 description, GDPR compliance report and sustainability planning reporting.
EJPRD D10.2 Second Annual strategic report and Action plan for Pillar 2, including: Systematic surveys reports, QMS of Pillar 2 description, GDPR compliance report and sustainability planning reporting.
EJPRD D10.3 Third Annual strategic report and Action plan for Pillar 2, including: Systematic surveys reports, QMS of Pillar 2 description, GDPR compliance report and sustainability planning reporting.
EJPRD D14.1 First Report of Orphanet nomenclature training for trainers and national trainings.
EJPRD D14.3 First Report on Course on interpretation of genetic variants and quality standards.
EJPRD D16.4_First Impact Assessment of the online academic course
EJPRD D14.5 First Report on International course on undiagnosed diseases.
EJPRD D14.7 First Report on Sample data management training workshops.
EJPRD D14.9 First Report on International course on RD Registries and FAIRification of data at the source.
EJPRD D15.1 First Report on ExPRESS.
EJPRD D15.3 First Report on training of patient representatives on scientific innovation and translational research in RD.
EJPRD D15.5 First Report on EURORDIS's Leadership Programme.
EJPRD D15.7 Training plan for paediatric patients in the EJP.
EJPRD D16.1 Draft Content of the Online Academic Course.
EJPRD D16.2 Content of the first five online modules.
EJPRD D17.1 Results of survey on preferences, needs and resources from the ERNs ecosystem.
EJPRD_D17.2_PU_EJP RD ERN training programmes.
EJPRD_D17.3_PU_First Annual report on implementation of training programs
EJPRD AD25. Report on workshops for patient engagement in research.
EJPRD AD28. Technical platform developed and ready for online academic course deployment.

Annex II: A list of the main meetings to collect feedbacks, discussions, proposals, reflections on RD research education and training

<p>General feedbacks and discussions were collected from:</p> <ul style="list-style-type: none"> ○ EJP RD annual Executive Committee meetings (3rd of July 2019; 7th of July 2020; 6th of July 2021); ○ EJP RD Policy Board meetings (4th of July 2019; 8th of July 2020; 12th of January 2021); ○ EJP RD General Assembly meetings (16 – 19th of September 2019; 14th – 18th of September 2020; 14 -16th of September 2021); ○ Workshop “Rare disease perspectives in Central - Eastern Europe” (16th of September 2019); ○ Joint Transnational Call 2020 Kick-off meeting for funded projects (April 14th 2021); ○ EJPRD Midterm evaluation (16-19 April, 2021); ○ EJP RD Strategy Meeting “Alignment of national rare diseases strategies with EJP RD” (8 July, 2021). 	
<p>More in depth discussions (feedbacks and decisions) were collected from:</p>	
The meeting	The main feedbacks and decisions
Workshop “Rare disease perspectives in Central - Eastern Europe” (16th of September 2019)	Challenges that are specific to EU-13 countries; participation and performance of researchers from EU-13 countries in the international RD research, the role of education and training to increase capacities and participation.
EJP RD General Assembly, dedicated Pillar 3 sessions (18 – 19th of September 2019; 14th of September 2020)	Decisions on continuous improvement scheme for Pillar 3 trainings; decisions on proposed adaptations for improvement; identifying and sharing Good Training Practices; development of a Toolkit for EJP RD trainings; dissemination and awareness raising for EJP RD training activities; sustainability issues; contingency plans due to COVID-19 pandemics.
EJP RD Policy Board and Governing Board meeting; a session Annual Work Plan Year 3, presentation of WP18 Identification of new education & training needs/gaps (8th of July 2020)	Train the trainers concept, opportunities and challenges for scaling-up of EJP RD-developed trainings into national systems (e.g., limited resources, language issues, dissemination channels); impacts of EJP RD trainings: the need to measure and improve/adapt accordingly, short-term vs. long-term impacts; importance of trainings for standardization and quality of research and proposals for excellence spreading (e.g., active promotion of trainings for EJP RD JTC applicants, inclusion of standards into evaluation of proposals to foster learning, etc.).
EJP RD Policy Board meeting, dedicated session “Back to basics – education & empowerment” (12th Jan, 2021)	The need to evaluate EJP RD capacity building and empowerment programme across many axes (incl. R & I pipeline from basic research to translation; career stages from student to Principal Investigator; multistakeholder community; under-served groups and underrepresented countries; patient-centeredness); alignment with EU research and educational policies (ERA, EEA, Digital transformation); alignment with national educational policies.
General Assembly and Consortium Meeting 2021, dedicated session “Sharing training needs and possible solutions for implementation in Pillar 3 (P3 and P1/2/4)” (15th of September 2021)	Research needs arising from the development of work and activities in the EJP across all pillars; a list of potential solutions to address these newly identified training needs; prioritization of activities to be implemented in WP18 vs. implementation in other WP vs. adaptation of existing trainings.