Rare Diseases

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44.1 Challenges Faced When Providing Care to People Living with a Rare Disease

The following chapter focuses on presenting rare diseases and the needs of people living with a rare disease, as well as providing context on the provision of integrated care to this client group in Europe.

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44.1.1 Background on Rare Diseases

"When you have a rare disease it feels like you are so alone and no one cares", Janet, mid-50s, living with Alkaptonuria (EUCERD Joint Action 2012).

Rare diseases (RDs) affect a small number of people relative to the general population. A disease is defined as rare when it affects less than 1 in 2000 people in Europe (Nguengang Wakap 2020) and less than one in 1250 people in the USA (Schieppati et al. 2008). Definitions vary in different countries/world regions according to population sizes. The World Health Organisation suggests a frequency of less than 6.5–10 in 10,000 (Aronson 2006).

There are over 6000 RDs (Orphanet 2012). Although each RD is characterised by a low prevalence, they affect 30 million people in Europe and 400 million people worldwide (World Health Organisation 2013). Most patients suffer from less frequent diseases affecting 1 in 100,000 people or less and are consequently particularly isolated and vulnerable (Council of the European Union 2009).

The cause remains unknown for many RDs. Most of them are genetic, but there are also very rare forms of infectious diseases, autoimmune diseases and cancers (Orphanet 2012). RDs may affect patients in different ways and are often multisystem disorders, affecting various organs and tissues.

RDs are heterogeneous in terms of prevalence, age of onset, clinical severity and outcome. However, they share various common features: they are serious, often chronic, progressive, degenerative and associated with comorbidities (Orphanet 2012). As a result, they substantially affect life expectancy and altogether account for a considerable rate of the early-life deaths and lifelong disabilities in the European population (Rare Diseases Task Force 2008).

RDs are the cause of various severe impairments, and a high percentage of people with a RD is affected by motor or intellectual impairments, which can occur simultaneously (Guillem et al. 2008; Tozzi et al. 2013).

There are currently no treatments available for 4000–5000 RDs (Orphanet 2015). Scientific knowledge is growing rapidly but not translating into therapies quickly enough. Patients are facing major hurdles to access approved new therapies. About one-third of patients do not have access to the orphan medicine they need. Another third have access only after waiting several years, as medicines are introduced first in the main markets and then progressively over 6 years in the other markets (Le Cam 2015).

Additionally, existing and accessible treatments are not always able to minimise all the complex impairments generated by the disease, highlighting the need for integrated care provision to alleviate the impact of RDs in patients' and families' daily life.

44.1.2 Unmet Needs of People Living with a Rare Disease

> We were looking for a diagnosis (which took roughly 6 years). By asking a year "non-paid break"—to pursue my diagnosis journey and to take care of my children, one of them also having similar symptoms—I received a refusal from the employer. So I decided to give up my job and stayed unemployed for 4 years. Feeling stronger after the diagnosis and the information about the disease (which my husband I and I sought by ourselves), I decided to pick up work again. One year: part-time and thus earning half as much as before. Female, Luxembourg (EURORDIS 2017)

> I don't look ill but I am very ill, with a condition which no one understands or has heard of. Female, United Kingdom (EURORDIS 2017).

> MP has so many medical appointments, and therapy sessions that I had to stop working. I have only 4 hours free to come back home, do the cleaning, cook, go to supermarket, deal with the infinite bureaucratic processes. Then, I pick him up, come back home and accompany him in all the exercises his therapist has given him. I go to bed exhausted and I don't get a lot of help at home. At this moment, it is impossible for me to find a job. Female, Spain (EUCERD Joint Action 2012).

The failure to meet the serious unmet needs of people with a RD and their families affects their dignity, autonomy and other fundamental human rights expressed in the Universal Declaration of Human Rights and in the United Nations Convention on the Rights of Persons with Disabilities (Commission Expert Group on Rare Diseases 2016).

People living with RDs are psychologically, socially, economically and culturally vulnerable. The cumulative effects of illness and disability generated by RDs amplify the social exclusion experienced by patients and their relatives.

85% of the respondents to the first European survey on the everyday impact of RDs declared that the RD impacts upon several aspects of their health and everyday life (EURORDIS 2017[1]). The evidence from this survey demonstrates that the consequences of living with a RD reach far and wide beyond the health niche, extending to the socio-economic, family, education, employment and other social inclusion spheres:

- RDs have a significant impact on functioning and activities of daily living: seven in ten respondents have difficulties with motor/sensorial functioning while seven in ten also have difficulties with basic daily activities and tasks;
- RD patients and carers spend significant time managing the disease and the care pathway—42% of the respondents spend more than 2 h a day on illness-related tasks (e.g. hygiene, administration of treatments) and one-third of the carers spend over 6 h a day on these tasks;

1European survey—"Juggling care and daily life: The balancing act of the rare disease community", to 3071 respondents from 42 countries. The survey was conducted in 23 languages, by EURORDIS−Rare Diseases Europe, through its Rare Barometer Programme, and within the EU−funded project INNOVCare. More information available at: https://download2.eurordis.org.s3.amazonaws.com/rbv/2017_05_09_Social%20survey%20leaflet%20final.pdf.

- RDs generate a strong impact on employment and work-life balance, as well as significant economic burden: seven in ten respondents had to reduce or stop their professional activity, while 58% were absent from work over 15 days in the year prior to the survey. Additionally, 73% of the respondents stated that the costs related with their disease are high while 69% also faced an income decrease;
- Care pathways are complex and hard to manage: 65% of the respondents have to visit different health, social and local services in a short period of time; 67% feel that these services communicate badly with each other;
- There is a lack of information and preparation from social services: seven in ten respondents do not feel well informed about their rights; 71% feel that professionals from social and support services are badly prepared to support them in managing the consequences of their RD;
- There is a serious impact on the mental health of people living with a rare disease and their carers: feelings of depression and unhappiness are three times more common amongst people living with a rare disease and their family carers, compared with the general population.

As a consequence of all these challenges, both patients and family members—often the main carers—frequently find themselves in burnout situations, unable to cope physically and psychologically with the situation.

RDs indeed generate a considerable moral suffering (French Social and Economic Council 2001), and it has been recognised that they result in reduced quality of life and affect individuals' potential for education and learning abilities (Schieppati et al. 2008).

Compared to more prevalent chronic disorders, people living with a RD have a worse quality of life and experience higher losses in terms of medical care and social and economic activities (Van Nispen et al. 2003).

44.1.3 Challenges in Care Provision

> Inter-professional communication works only through the good intentions and efforts of particular professional individuals. This is one of the main difficulties. Today, departments communicate with each other primarily through patients themselves or their parents. However, this only works for very dedicated people. Not everyone is able or willing to carry this out. Male, Czech Republic (EURORDIS 2017).

> It is not possible to get a 'check list' of all the people you need to talk with. Also, service providers differ in the amount of interest they show. Male, Ireland (EUCERD Joint Action 2012).

A person with a RD is seldom a standard patient or service beneficiary. The combination of the rarity, complexity and lack of treatment creates particular hurdles in the provision of holistic care:

- Expertise and information on RDs and their consequences are scarce and difficult to access. Therefore, professionals often lack knowledge on RDs, and the scarcity of expertise forces many RD patients to seek care abroad;
- People living with RDs need continuous and, often, lifelong, follow-up care and support from different categories of professionals. These often include several different medical specialties, as well as social workers and other social and local service providers (Commission Expert Group on Rare Diseases 2016):
  - Indeed 65% of the respondents to the European survey had to visit different health, social and local services in a short period of time (EURORDIS 2017);
  - In a survey conducted in Denmark, people living with RDs reported having been referred to between 10 and 30 social and healthcare professionals as contact points (Byskov Holm and Jensen 2014);

Adding to these challenges, people with RDs experience barriers when accessing health and welfare services (Grut and Kvam 2013). The challenges faced include as follows:

- Care systems are usually designed around common diseases, and mainstream services are not flexible enough to take into consideration unprecedented health needs (EURORDIS 2009);
- Care pathways are fragmented and extremely difficult to navigate for patients and families:
  - Obtaining the correct diagnosis, the needed social care and support to manage the transitions between hospital and home and between childhood and adulthood remain a challenge (Brains for Brain Foundation 2014);
  - Seven in ten respondents to the European survey find that organising care is time consuming and six in ten find it hard to manage (EURORDIS 2017);
  - In the Danish survey, people living with a RD and carers reported having to spend an average of 25 h per month in contact with health and social professionals (Byskov Holm and Jensen 2014);
  - There is a lack of communication and coordination within and between the health and social care sectors, as well as between national and local services (Byskov Holm and Jensen 2014); 67% of the respondents to the European survey feel that health, social and local services communicate badly with each other while seven in ten respondents do not feel well informed about their rights (EURORDIS 2017);
  - In most cases, the management and coordination of care have to be done by patients and families, which places a heavy burden on family life (Dammann 2015);

- Medical and social care professionals are insufficiently informed and trained to care for people living with a RD and tend to be reluctant to treat patients due to the complexity of their disease (EURORDIS 2009);
- Cross-border health care remains a challenge due to the fragmentation of legal systems, different access to and reimbursement of services, lack of information on how and when to access it, as well as burdensome administrative requirements.

These issues are of particular importance given that patients and families perceive that their quality of life of is more closely linked to the quality of care provided than to the gravity of their illness or the degree of the associated disabilities (EURORDIS 2009).

44.2 Goal of Integrated Care for Rare Diseases

The low prevalence and complexity of RDs, as well as the significant unmet needs of RD patients, highlight the need for the implementation of holistic, integrated and patient-centred care pathways, which respond to the complexity of RD challenges through an interdisciplinary approach.

Integrated care, within the health system and between health, social and community services, is essential to enable people living with RDs to overcome their care challenges and to secure the services and support that they need (EURORDIS 2019). This will thus allow them to achieve a quality of life on equal footing with other citizens and to increase their participation in society and in the job market (INNOVCare 2018b).

The Commission Expert Group on Rare Diseases recommends that European Member States promote measures that facilitate multidisciplinary, holistic, continuous, person-centred and participative care provision to people living with a rare disease, supporting them in the full realisation of their fundamental human rights (Commission Expert Group on Rare Diseases 2016). And indeed, recent studies show that integrated care is especially beneficial for people with complex needs (Klinga et al. 2015). Integrated care for RDs ensures:

- The transfer of scarce information and expertise on RDs;
- Coordination and communication between health, social and local care providers;
- Optimisation of care pathways and resources, increasing patients'/families' quality of life and reducing healthcare expenditure and economic burden for society (Reich et al. 2012);
- Integration of RD specificities into mainstream services;
- An answer to some of the main challenges of RDs, such as diagnostic delays, transitions from child to adult services and from hospital to home, access to social and community services;

- Reduction of the burden on patients and families who will no longer be responsible for coordinating care and will be supported in navigating the care system.

44.3 The Integrated Care Pathway for Rare Diseases

44.3.1 Proposals for the Provision of Integrated Care to People with Rare Diseases[2]

Care for people living with a RD needs to be holistic, multidisciplinary and specifically tailored to patients' unique needs (McGarvey and Har 2008).

This implies the provision of a set of health, social and support services, including rehabilitation, day care, home care, personal assistants, respite services, adapted schools and work place, psychological support and social prescribing, amongst others.

There is agreement in Europe upon the necessity of coordinating RD patients' care nationally and internationally. The recommendations of the European Union Committee of Experts on Rare Diseases (EUCERD) and of the Commission Expert Group on Rare Diseases (CEGRD)[3] to the European Commission (EC) and Member States (MS) promote a set of important measures and quality criteria,[4] supporting the development of healthcare pathways at national level and European networks at international level.

A set of specific recommendations from the CEGRD also focused on the incorporation of rare diseases into social services and policies, highlighting the need for multidisciplinary, holistic and continuous care for people with RDs (Commission Expert Group on Rare Diseases 2016).

At national level, the development of National Plans[5] for RDs is encouraged, alongside the organisation of national care pathways embedded into the health system, including Centres of Expertise[6] and national networks for a RD/cluster of

[2]More information is available at: https://www.eurordis.org/carepaper.

[3]The EUCERD was a multi-stakeholder group including RD experts, MS and patient representatives, charged with aiding the EC with the preparation and implementation of community activities in the field of RDs, in cooperation and consultation with the specialised bodies in MS, the relevant European authorities and other relevant stakeholders. In 2014, the EUCERD was replaced by the European Commission Expert Group on Rare Diseases (CEGRD). More information is available at: https://www.eucerd.eu/.

[4]EUCERD recommendations are available at: https://www.eucerd.eu/?page_id¼13.

[5]More information is available at: https://www.europlanproject.eu/Content?folder¼1.

[6]Centres of Expertise (CEs) are physical expert structures for the management and care of RD patients. Each CE is specialised in a single RD or group of RDs and shares the mission of providing patients with the highest standards of care to deliver timely diagnosis, appropriate treatments and follow-up. More information is available at https://www.eurordis.org/sites/default/files/publications/factsheet_Centres_Expertise.pdf.

RDs. On the other hand, the development of European Reference Networks[7] for RDs is regarded as essential to facilitate the provision of cross-border health care[8] and to reduce the burdens associated with seeking care abroad.

EURORDIS-Rare Diseases Europe, based on extensive surveys and consultations with people living with RD, as well as on the work of the multi-stakeholder EU-project INNOVCare, released the following recommendations for the implementation of integrated care for RDs (EURORDIS 2019):

- Creating a supportive political environment at national level:
  - All national plans and strategies for RDs must include provisions on integrated health–social care;
  - Specific mechanisms are needed to guarantee coordination between national policy sectors within a multidisciplinary approach, engaging health, social, work, education and research ministries. Inter-ministerial working groups and shared budgets between ministries should be implemented;
  - Sustainability mechanisms for integrated care for RDs must be put in place and accessible to public bodies, civil society and service providers.
- Implementing specific mechanisms to ensure integrated care for RDs:
  - Coordination and interoperability between all parties involved in the care provision must be promoted, including health, social and community services and patient/carer organisations. Coordination protocols, procedures, IT and e-health tools can be used for this;
  - RDs must be considered by the risk stratification tools used by healthcare systems to make decisions on integrated care, via the use of implemented codification systems;
  - All people living with RDs must be entitled to an individual, person-centred care plan, to be delivered within a multidisciplinary, holistic approach in coordination between all care providers;
  - National care pathways for RDs should be developed, indicating the process and care steps, identifying the existing coordinating mechanisms and the different care providers' responsibilities;
  - Case management, as an effective care coordination mechanism, should be implemented. Training on case management for RDs should be developed.
- Gathering and disseminating knowledge/good practices on integrated care for RDs:
  - Countries must recognise and support existing RD Centres of Expertise, national reference networks, resource centres, RD organisations and

[7]European Reference Networks (ERNs) for RDs should serve as research and knowledge centres, updating and contributing to the latest scientific findings, treating patients from other MS and ensuring the availability of subsequent treatment facilities wherever necessary. More information available at: https://ec.europa.eu/health/rare_diseases/european_reference_networks/erf/index_en.htm.

[8]More information is available at: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uriJ:L:2011:088:0045:0065:EN:PDF.

Orphanet[9] teams, capitalising on their robust expertise and knowledge to improve integrated care for RD;
- European Reference Networks and their constituent health care providers must continue to function as a platform to collect and disseminate data, good practices and guidance on health care and integrated care for RD, in cooperation with RD patient organisations;
- Training for health and social service providers must be delivered, building on the expertise of RD specialised services and RD patient organisations;
- Pilot projects must be supported, as generators of good practice and innovative services.

In regard to access to treatment, society, patients, experts, healthcare systems and the pharmaceutical industry need to think outside the box to address new challenges facing the rare disease community. There is an urgent need for a seamless approach to European cooperation on medicines development to bridge the gap between EU regulatory decisions and fragmented national/local pricing and reimbursement decisions. And patients need to be engaged in these processes (Le Cam 2015).

In line with the recommendations of the CEGRD and of EURORDIS, we explore below several concrete measures to support the implementation of integrated care for rare diseases.

44.3.1.1 Centres of Expertise[10]

Centres of Expertise, as health structures specialised in RDs, have a key role in sharing information and knowledge and building networks to facilitate integrated patient-centred care provision to people living with a RD and their families (EURORDIS 2013).

According to the EUCERD[11] (2011) Recommendations on Quality Criteria for Centres of Expertise on Rare Diseases, these centres should bring together or coordinate multidisciplinary competences/skills, including paramedical skills and social services; contribute to building healthcare pathways and to the elaboration and dissemination of good practice guidelines; provide education and training to non-healthcare professionals and produce information adapted to the specific needs of patients/families and of health and social professionals.

[9]Orphanet is a unique resource, gathering and improving knowledge on RDs so as to improve the diagnosis, care and treatment of patients with RDs. Orphanet aims to provide high-quality information on RDs and ensure equal access to knowledge for all stakeholders. Orphanet also maintains the Orphanet rare disease nomenclature (ORPHAcode), essential in improving the visibility of rare diseases in health and research information systems. More information is available at: https://www.orpha.net/consor/cgi-bin/index.php.

[10]Centres of Expertise (CEs) are physical expert structures for the management and care of RD patients. Each CE is specialised in a single RD or group of RDs. More information is available at https://www.eurordis.org/sites/default/files/publications/factsheet_Centres_Expertise.pdf.

[11]The CEGRD replaced the EUCERD in 2014 in supporting the EC with the preparation and implementation of community activities in the field of RDs. More information is available at: https://ec.europa.eu/health/rare_diseases/expert_group/index_en.htm.

44.3.1.2 Individual Care Plans

Simple, holistic and flexible individual care plans which can be implemented by central, regional and local services would be of great use in the context of RDs. Based on the assessment of individual needs, including health and social dimensions of care, these plans should be developed and implemented in collaboration between care providers, patients and families. Ideally, a coordinator should be assigned to manage and follow up the individual care plan.

44.3.1.3 Care Pathways and Standards of Care

Care pathways and standards of care are multidisciplinary care management tools which define the different tasks to be undertaken by professionals involved inpatient care and are essential to create equality in the level of care and services provided to people with a RD.

In Sweden, for example, the care pathway for RDs is organised through the Act on Support and Service for Persons with certain functional impairments,[12] an entitlement law that guarantees good living conditions for people with extensive and permanent functional impairment, ensuring that they receive the help they need in daily life and that they can influence the support and services they receive. The Swedish care pathway ensures a permanent contact in health, responsible for interactions within health care and for coordination of stakeholders, treatments and services, in line with an individual coordinating plan. The Centres of Expertise ensure interactions between medical and non-medical issues, and there is ongoing work on national treatment and care programs, within a holistic and lifelong approach.[13]

Other EU MS are currently developing care pathways for RDs using standards of care. For example, France and the Netherlands are establishing standards of care, in which the organisation of care within the national health network is described for a certain RD.

In France, by 2020, 128 national good practice guidelines for diagnosis, treatment and follow-up of people with RDs were published by expert health centres, while nearly 200 more were under development. The third French RD plan 2018–2022 aims thus to boost the production of these guidelines to 100 per year during 5 years and the updating of each one every 5 years.

In 2012, the French National Authority for Health (HAS) published a new simplified method to develop these guidelines, aiming to boost the production of the protocols in the following years (EUCERD 2014a; b)[14] The HAS then published and disseminated these protocols as they were developed.[15]

[12]More information is available at: https://www.socialstyrelsen.se/Lists/Artikelkatalog/attachments/8407/2009-126-188_2009126188.pdf.

[13]More information is available at: https://bit.ly/1M2noBZ.

[14]The full French National Plan for Rare Diseases (2018–2022) is available in English here: https://solidarites-sante.gouv.fr/IMG/pdf/pnmr3_-_en.pdf.

[15]More information on the French protocols is available here: https://www.has-sante.fr/jcms/c_1340879/fr/protocoles-nationaux-de-diagnostic-et-de-soins-pnds [French].

In the Netherlands, there has been important progress concerning RDs and integrated care, with the development of standards of care for 16 diseases, some of which are already implemented (Vajda et al. 2012).[16] The Dutch Genetic Alliance has been an important stakeholder in this process and keeps developing standards of care and other quality standards, according to a new national guideline.[17]

44.3.1.4 Case Managers

Case managers are essential for integrated care in RDs. They can ensure coordination between centralised and local care and alleviate the care coordination burden faced by patients and families.

Case managers have an instrumental role in adapting the existing care system to patients' individual needs and in supporting holistic and continuous care by: establishing networks of care providers; providing information and support to local professionals, patients and families; coordinating individual care plans; and providing information on cross-border care when needed.

Ideally, case managers should be trained and employed by, or work in connection with, Centres of Expertise. Case managers should be located at regional/local level in order to facilitate local care provision and should remain the same for as long as possible in order to ensure stability during transition periods.

The pilot of case management for RDs implemented within the EU-funded INNOVCare project (2017–2018) resulted in various positive outcomes within important daily life and care areas. People living with RDs and carers who benefited from the service increased their level of information about their disease, their rights and available services. Their capacity to manage their care also increased, while the service also reduced the burden faced by the caregivers. Furthermore, the case management brought improvements for care providers and public bodies, enhancing the coordination amongst these stakeholders involved in the care provision (INNOVCare 2018a).[18]

Another pilot implemented in France, PRIOR-RH, shows how case management can be organised by a regional centre of expertise for RDs. PRIOR-RH employs a multidisciplinary mobile team—health manager, genetic counsellor, social worker, psychologist, occupational therapist—which undertakes the role of case management for people with RDs in the region, thus improving their care pathways. PRIOR-RH has built a regional network of competence both in health and social care involving 23 partners. Additionally, PRIOR-RH provides information on RDs, draws up an inventory of regional expertise, directs patients towards social and medical care services, provides social follow-up to support patients in their life course and organises stakeholders meetings.[19]

[16]A national network of expertise is being set up for some RDs to provide integrated care. Moreover, the Dutch Genetic Alliance hosts a website to disseminate RD quality standards. More information is available at: www.zorgstandaarden.net.

[17]More information is available at: https://bit.ly/1WPmhgt [Dutch].

[18]More information is on Sect. 25.4 Results of Integrated Care Approaches to Care Delivery and at https://innovcare.eu/wp-content/uploads/2018/11/INNOVCare-Results_October-2018.pdf.

[19]More information is available at: https://download.eurordis.org.s3.amazonaws.com/emm2015/ws4/5.DOMINIQUE_FRANCE_Prior%20Eurordis%20Madrid.pdf.

Following the successful pilot of PRIOR-RH, several other platforms were created in France, mainly on the initiative of hospitals. Thereafter, the creation of other regional platforms was stimulated by the action of the French national plan RDs: ten regional RDs expertise platforms were endorsed and financially supported in 2019. Thirty others are to be implemented during the following 3 next years, enabling the full coverage of the French territory. Four RD coordination platforms were also created in 2019 in the French overseas territories.[20]

44.3.1.5 Resource Centres for Rare Diseases

Resource centres for RDs[21] are a one-stop shop service, complementary to health and social care services, specifically designed for people living with RDs and their carers. Resource centres provide holistic services and support, while also creating a bridge between patients and families and various stakeholders, services and professionals providing health care, social care and social support—including rehabilitation, education and employment.

Resource centres thus empower patients, families, carers and professionals at various levels and undertake an essential role in integrated care provision to people living with a RD. Resource centres' services include information and guidance, training courses, respite care, therapeutic education, information on social benefits and research. Sometimes daily therapies, medical/psychological consultations and therapeutic recreation are also provided.

The EUCERD Joint Action (2012–2015)[22] mapped existing resource centres for RDs, identifying 21 services in 12 European countries.[23] Amongst these are NoRo (Romania), Frambu (Norway) and Ågrenska (Sweden).

The NoRo Pilot Reference Centre for Rare Diseases is a resource centre, accredited both as a social service and a medical service, which provides holistic care based on a multidisciplinary and complementary approach and on the individual assessment of patients' needs. The centre ensures continuity of care through collaboration with other services in the community and by establishing networks with medical universities.[24] NoRo runs a helpline for RDs and organises training for patients, volunteers and professionals,[25] as well as support groups, therapeutic weekends for families and therapeutic camps for children.

Frambu's multidisciplinary team provides services to people living with over 120 different RDs as well as to carers and service providers. The centre complements the services provided by the Norwegian health system and works in

[20]More information is available at: https://solidarites-sante.gouv.fr/IMG/pdf/pnmr3_-_en.pdf.
[21]More information is available at: https://innovcare.eu/social-services/resource-centres-for-rare-diseases/.
[22]17 The EUCERD Joint Action: Working for Rare Diseases, co-funded by the EC, supported the activities and mandate of the EUCERD until the end of 2013 and the activities of the CEGRD, from 2014. More information is available at: https://www.eucerd.eu/?page_id¼54.
[23]18 Map and list of services are available at: https://www.eurordis.org/specialised-social-services.
[24]19 NoRo has organised a network of videoconference facilities with seven Romanian medical universities which aims at facilitating direct access to information/good practices and meetings between patients and professionals.
[25]20 More information is available at: www.edubolirare.ro.

connection with university hospitals. Frambu is a meeting place for families and professionals providing competence, knowledge, documentation and guidance and organising residential courses, summer camps, research projects and outreach activities in local communities.

Ågrenska's main objective is to gather, develop and spread knowledge on RDs and their consequences. The centre provides family programmes, adult programmes, respite care services, summer camps, a family support unit, courses for professionals and social research. The centre aims at supporting and empowering people to cope with everyday life and to be as independent as possible.[26]

These resource centres have now joined together with other resource centres from across Europe to create RareResourceNet[27]—the European Network of Resource Centres for Rare Diseases. The network aims at accelerating the development and the implementation of holistic high-quality care pathways for people living with RDs across Europe, to contribute to raise standards of care and support.

44.3.1.6 Networking and Training Programmes for Service Providers

Coordination and networking between all parties involved in care provision is essential to support the transfer of the scarce expertise on RDs from central structures to regional and local services.

National authorities should allocate funding to support the creation of multidisciplinary teams composed by health (including Centres of Expertise), social and local care providers. Networking at an international level could be facilitated via the European Reference Network for RDs.

Training health and non-health professionals is essential to support the integration of RDs specificities into mainstream services. Centres of Expertise should take the lead in developing training and networking programmes/tools for social and local support service professionals involved in the different stages of the care pathway. The EUCERD Joint Action has developed guiding principles and case study documents essential to support the design of training programmes for social care providers (EUCERD Joint Action 2014a, b).

44.3.1.7 Integration of Rare Diseases into National Functionality Assessment Systems

A high percentage of people with a rare disease are affected by motor, sensorineural or intellectual impairments, which can occur simultaneously (Guillem et al. 2008).

72% of people living with RDs involved in the European survey declared having difficulties with motor or sensorial functioning. The recognition of their disability was the main challenge: 34% of the respondents who had been submitted to a disability assessment found the percentage of disability assigned to them too low;

[26]More information is available at: https://download.eurordis.org/documents/pdf/sss/3-RCS-Agrenska-Gunilla-Jaeger.pdf.
[27]More information is available at: https://innovcare.eu/social-services/rareresourcenet/.

and 19% of respondents had not been submitted to a disability assessment despite feeling that they needed to (EURORDIS 2017).

The Commission Expert Group on Rare Diseases recommends to Member States that RD specificities should be integrated into national systems when assessing a person's level of functioning, in line with the United Nations Convention on the Rights of Persons with Disabilities (Commission Expert Group on Rare Diseases 2016). A fair assessment of patients' functionality would ensure that health care and welfare systems take into account the complexity of RDs, supporting medical and social services to develop integrated care plans.

To ensure an adequate evaluation, the assessment system should be flexible to adapt to people with a RD affected by complex combinations of several impairments, less visible impairments, degenerative conditions or acute disease periods. The Orphanet Disability Project[28] (de Chalendar et al. 2014) which develops RD disability core sets derived from and compatible with the International Classification of Functioning, Disability and Health (ICF) is an important tool that can support national authorities to improve the assessment of functionality and disability of people living with a RD.

44.3.1.8 e-Health to Facilitate Data Sharing and Interoperability

Integrated care for RDs can also be supported by the use of e-Health solutions which can improve the quality of treatment, broaden access to medical care, improve health outcomes and quality of life, get the most out of technologies and new services, and reduce pressures on public healthcare budgets.

Additionally, e-Health can help address a major issue for the RD community: data protection and interoperability. A priority for any e-Health service should be to enable the integration of (possibly disparate) sources of data, based on unambiguous electronic identification of patients, across countries and across databases.

44.3.1.9 European Reference Networks[29]

The concept of a European Reference Network (ERN) represents a major step forwards in optimising and equalising care for Europeans living with health conditions which require a particular concentration of highly specialised expertise, most notably people with RDs.

Twenty-four ERNs were officially launched in 2017, uniting Centres of Expertise all across Europe, with the ambition that under this suite of networks all RDs would have "a home".[30] The era of the ERNs holds huge promise to advance and expand the provision of integrated, holistic and person-centred care for people with RDs. The networks could add value in many practical ways:

[28]More information is available at: https://www.rare-diseases.eu/wp-content/uploads/2014/05/0602_Myriam_de_CHALENDAR.pdf.

[29]More information available at: http://ec.europa.eu/health/rare_diseases/european_reference_networks/erf/index_en.htm. and http://www.rd-action.eu/wp-content/uploads/2018/09/Final-Overview-Report-State-of-the-Art-2018-version.pdf, Section 5 (Hedley et al. 2018).

[30]This founding principle is explained in the Addendum to the EUCERD Recommendations on ERNs: https://ec.europa.eu/health/sites/health/files/rare_diseases/docs/20150610_erns_eucerdaddendum_en.pdf.

- ERNs can build and disseminate knowledge and understanding of the true medical, social and holistic needs of people with RDs, by collecting data (including "quality of life" data) and conducting research;
- ERNs can spread understanding of the benefits of creating integrated pathways between health and social care. Although national realities differ significantly, ERN clinicians and patients can define the specialisms and stakeholders who should be involved at each stages of a patient's journey (encompassing medical specialists from multiple disciplines but also physiotherapists, psychologists, social workers, etc.);
- ERNs could stimulate the creation of personalised health and social care plans for patients attending their respective member centres (known as healthcare providers);
- In the past, European countries agreed ambitious but critically important criteria by which to define a true Centre of Expertise for RDs. ERNs could help to embed good practices in their respective healthcare providers, to encourage them to meet the criteria concerning integrated, person-centred and holistic care.[31]

Several sets of European Recommendations espouse the added value of ERNs for this essential topic[32]: the next steps will be to support the networks in implementing activities such as the above. The impact here would be tremendous. The launch of ERNs united almost a thousand leading healthcare providers across Europe,[33] and in late 2019, the networks took steps to significantly increase their membership and outreach, affording unprecedented opportunities to uncover and disseminate good practices.

44.4 Results of Integrated Care Approaches to Care Delivery

Regardless of the scarcity of data and studies on integrated care provision to people living with RDs, models of care which take into account integrated care methods have proven to be effective in optimising health outcomes and quality of life of people with RDs.

The pilot of case management for rare diseases implemented within the EU-funded INNOVCare project (Romania, 2017–2018) resulted in various positive outcomes within important daily life and care areas. People living with RDs and carers who benefited from the service increased their level of information about

[31]This founding principle is explained in the Addendum to the EUCERD Recommendations on ERNs: https://ec.europa.eu/health/sites/health/files/rare_diseases/docs/20150610_erns_eucerdaddendum_en.pdf.

[32]This founding principle is explained in the Addendum to the EUCERD Recommendations on ERNs: https://ec.europa.eu/health/sites/health/files/rare_diseases/docs/20150610_erns_eucerdaddendum_en.pdf.

[33]More information is available at: https://ec.europa.eu/health/ern_en.

their disease, their rights and available services. Their capacity to manage their care also increased, while the service also reduced the burden faced by caregivers (assessed via the Zarit Caregiver Burden scale). Furthermore, the case management generated improvements for care providers and public bodies, enhancing the coordination amongst these stakeholders involved in the care provision (INNOVCare 2018a).[34]

An example of integrated care provision for cystic fibrosis patients in Europe shows that the establishment of a centre providing multidisciplinary care for this RD—including consultants, nurse, microbiologist, physiotherapist, dietician, pharmacist, psychologist, social worker, geneticist and allied healthcare professionals experienced in cystic fibrosis care—results in a significant increase in life expectancy for patients (Conway et al. 2014).

A study conducted by Ågrenska's one-stop-shop service for RDs, revealed that this resource centre is perceived as an improvement relative to patients' experience within the healthcare system in terms of treatment, outlook for the future, socio-economic support, peer support and consideration by professionals and by the institution. Additionally, this type of holistic approach is cost-effective and leads to a nearly threefold decrease in costs to society (Olauson 2002).[35]

Various pilots of integrated care provision for people with RDs and families are currently ongoing throughout Europe. In the upcoming years, the results of the evaluation of these pilots are expected to provide further insight into the health, social and economic benefits of integrated care provision to people living with a RD, as well as data on the cost effectiveness of these services and on their impact on the optimisation of resources for national care systems.

[34]INNOVCare (2015–2018), a project co-funded by the EU, addressed the issue of integrated care for people affected by RDs by developing, testing and promoting a holistic, personalised care pathway. A pilot of case management was implemented and evaluated during the project. The pilot took place in Romania, in 2017–2018, and involved 121 patients with RDs, who had access to the service for 9 months, over a course of 18 months in total. The evaluation method consisted of a two-condition repeated measures design/rotation design with randomised control trial. The patients were divided with two groups, and each group was accessing the service in alternance, allowing for comparisons between the groups and within the same group. More information is at: www.innovcare.eu.

[35]Study done by the Department of Economics of the University of Gothenburg on Ågrenska: the approach offered by the centre saves money compared to ordinary programmes for disabled children. Moreover, a family requires less support from social services when having access to the centre. There is a nearly threefold decrease in costs when the child is correctly diagnosed and accesses proper treatment, compared to a child who is improperly diagnosed and treated through ordinary programmes. The savings appear to result from the reduction of costs with seeking emergency help, visiting specialists and sick leaves.

44.5 Lessons Learned and Outlook

The rarity, complexity and lack of treatment of RDs lead to significant unmet medical and social needs while creating particular obstacles to the provision of integrated care.

The provision of integrated care is essential for people with RDs to: ensure the transfer of the scarce expertise and information available; to support the coordination and communication between care providers; to optimise resources; to integrate RD specificities into mainstream services; to improve care and care pathways; and to reduce the burden for families, consequently increasing their quality of life.

Studies and pilots conducted so far have shown that integrated holistic care provision in RDs increases quality of life of people living with RDs, while being cost-effective and decreasing costs for society. A recent pilot of case management services for RDs, implemented within the EU-funded project INNOVCare, brought important benefits to people with RDs and their family members, while also improving the coordination amongst care providers.

Despite this growing evidence of the benefits of integrated care for RDs, much remains to be done to achieve integrated care for people living with RDs in Europe.

The Commission Expert Group on Rare Diseases recommends that European Member States promote measures that facilitate multidisciplinary, holistic, continuous, person-centred and participative care provision to people living with RDs, supporting them in the full realisation of their fundamental human rights.

To support this process, the European umbrella organisation for rare diseases has released a set of recommendations to support the implementation of integrated care for RDs in Europe. These recommendations include measures to create a supporting environment at national level, specific mechanisms to ensure integrated care and concrete measures to support the gathering and dissemination of essential knowledge and good practice.

Various methods can and should be used simultaneously to promote integrated care for RDs including: Centres of Expertise and resource centres for RDs; case managers; care pathways and standards of care; individual care plans; networking and training programmes for service providers; eHealth; European Reference Networks; and the integration of RDs into national functionality assessment systems.

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