ESIF support for health investments

Analysis report
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A first version of this report was delivered on 8 January 2018 along with the interim report. The report was subsequently updated following input from the European Commission, and to incorporate the results from additional research on other ESI Funded projects carried out in 2018. The final version was delivered on 4 February 2019.
Executive Summary

The European Structural and Investment (ESI) Funds invest in job creation and a sustainable and healthy European economy and environment. The total budget of the ESI Funds is nearly EUR 351.8 billion, which represents more than half of the total EU budget. The ESI Funds provide financial support to health investments to improve access to healthcare, reduce health inequalities, and boost healthcare reforms.

While previous reviews by the European Commission as well as external research, has focused on the extent to which the Operational Programmes (OPs) prepared by Member States’ to plan ESI Fund spending during 2014-2020 support health at the strategic level, the ESI Funds for Health project assesses the actual investments funded to date across the Member States and the Interreg programmes during this programming period. The project also aims at drawing conclusions about the extent to which the investments correspond to health policy priorities at the EU level, as well as to the structural reforms discussed in the Member State country reports and in particular the Country-Specific Recommendations (CSRs) addressing health.

This report is based on the results of the first phase of the ESI Funds for Health project. During this phase, a total of 7,404 health-related projects were identified across all EU Member States and Regional Cooperation programmes (Interreg). Information about the projects was compiled into a database allowing sorting and categorising by Member State, health theme, sub-themes and other characteristics to enable the analysis included in this report.

This report aims at analysing how these investments relate to EU and national health policy goals, targets and needs. The analysis is also based on a more in-depth study of a group of exemplary projects that enable a better understanding of the funding trends. This report also set the stage for the capacity building and dissemination events carried out by the ESI Funds for Health project in 2018 across different EU Member States.

To enable a more precise understanding of the extent to which ESI funded investments are used to support different aspects of health policy, the identified ESI Funded projects were categorised into six health themes:

- Theme 1: Improving access to healthcare
- Theme 2: Support to reform processes towards effective and resilient health systems
- Theme 3: Uptake of e-health/digital solutions
- Theme 4: Research and innovation in health and life sciences
- Theme 5: Active and healthy ageing, healthy workforce, health promotion and disease prevention
- Theme 6: Health workforce

This report contains a separate analysis carried out for each of the six health themes. These findings are summarised below and presented in detail in each of the chapters of this report.

Improving access to healthcare

Evidence shows that a higher degree of access to healthcare - a concept measuring the proportion of a population that reaches appropriate health services - can improve people’s overall health status and is essential for achieving a good quality of life, prolonging life expectancy and decreasing health inequalities. A total of 923 ESI Funded projects - corresponding to around 12% of the total identified in this study – are

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1 This corresponds to both planning and programming of the ESI Funds, particularly the European Social Fund (ESF) and the European Regional Development Fund (ERDF) as well as specific projects selected for funding across the EU-28 as of August 2017 (and July 2018 for certain Member States: Spain, Romania, Italy and Malta).

2 http://www.esifundsforhealth.eu/workshops

2
contributing to improving access to healthcare across the EU. These projects represent nearly 1.3 billion\(^3\) or around 15% of all health projects identified. Overall, 16 Member States have programmed investments in the area of access to healthcare. However, among the countries which had some CSRs related to access to healthcare during 2015-2018 no projects supporting this area were identified in Bulgaria, Cyprus, Ireland, Latvia and Romania. In some cases, investments have been made in other health-related themes that can indirectly improve access to healthcare (e.g. in Bulgaria, where investments have been made in building the health workforce, which will indirectly support access to healthcare services).

Many ESI funded projects are improving access to healthcare by addressing different barriers that limit such access (e.g. distance, price and quality of healthcare but also social stigma, language and cultural barriers). A particular approach is used by several projects addressing geographical barriers (e.g. a project in the Algarve region (Portugal) using mobile health units to provide health services for rural and remote areas and a similarly motivated Interreg project funded by the Greece-Bulgaria Interreg programme). Due to the limited information available in project descriptions, it is difficult to ascertain whether some regions facing similar problems are systematically using ESI Funds to improve access to healthcare services in a similar way. However, for Interreg it was possible to identify many projects targeting geographical barriers in cross-border areas.

Projects targeting vulnerable populations were also numerous and easier to identify, as the targeted populations are usually mentioned in the project descriptions. These projects often focus on low-income populations, the unemployed, people with mental health, people with disabilities and elderly populations at risk of social isolation (e.g. social pharmacies in Greece, projects targeting vulnerable groups in Croatia, the Interreg project EmpowerKids in Finland, Estonia, Latvia and Sweden). Relatively fewer projects targeting Roma populations and immigrants were identified - with the exception of a few projects in Slovenia and a few other Interreg projects in Bulgaria, Greece and Romania.

In addition to these types of interventions, a significant number of projects are improving access through investments in health infrastructure, and many small projects (mostly identified in Germany) that focus on improving the skills of health workers to address the needs of vulnerable populations.

**Theme 2: Support to reform processes towards effective and resilient health systems**

Effective and resilient health systems underpin EU’s ability to deliver high quality healthcare to individuals. Population ageing, technological change and growing citizen expectations are placing growing pressure on Member State health budgets. Actions to ensure the long-term fiscal sustainability of healthcare systems are necessary to secure Member States’ ability to provide access to health services and ESI Funds can support a wide range of interventions for this purpose.

Around 1,738 or 23% of the total number of ESI funded projects (7,404) are supporting health system reform across Member States. These projects represent EUR 1.6 billion\(^4\) or around 20% of the budget for all health projects identified. Investments in health system reform were found in 16 Member States, with a particular concentration of projects in Poland (486 projects), Spain (303 projects) and Bulgaria (333 projects).

Deinstitutionalisation is one key aspect of health system reforms and indeed many ESI Funded projects are focusing on the shift from institutional to community-based care (e.g. many projects in Poland and Bulgaria, where governments are seeking to shift service provision away from institutional settings). Such

\(^3\) For around 7% of the thematic block 1 projects budget information was not available.

\(^4\) For around 8% of the theme 2 projects budget information was not available.
investments are often linked to broader national or regional policy strategies or developments and appear to be contributing to transformational shifts in healthcare systems.

Relatively few projects are focusing on reforming hospital systems and improving primary and integrated care. Of these, most of the projects focus on new or upgraded infrastructure or equipment, and rarely emphasise primary and integrated care. An overall objective of health system reform is building the overall efficiency and sustainability of healthcare systems. Often, this objective is not immediately evident in the description of ESI Funded projects. Nonetheless, many projects, especially those focused on deinstitutionalisation, should contribute to this goal through developing a more cost-effective model of service provision.

Many countries had Country Specific Recommendations relating to health system reform during 2015-2018; however, we did not identify projects directly targeting health system reform in Austria, Cyprus, Croatia and Ireland. For some of these countries, investments might have been made in other themes that are intended to indirectly improve their health systems (e.g. in Croatia and Ireland, where large investments have been made in health promotion and disease prevention, which could indirectly support the health systems in the coming years).

**Theme 3: Uptake of e-health and digital health solutions**

e-health and digital health technologies can contribute to improve the efficiency, resilience and sustainability of health systems by developing innovative solutions addressing the challenges posed by an ageing population. While the development of a digital single market and the uptake of e-health and digital technologies have been at the core of several EU policy actions, the promises of e-health remain largely unfulfilled; hence ESI Funds have a key role to play in this area.

Only a small number of projects (225 projects or around 3% of the total identified in this project) are related to e-health. However, due to relatively large budgets, these projects account for around 7% of the budget of all health projects identified. Also, due to the cross-cutting nature of e-health interventions, it is possible that projects classified in other themes—especially under the theme of research and innovation in health—also support the development of e-health solutions. Several ESI funded projects related to e-health were identified for the only country that had a reference to the need to improve its e-health system within its 2018 Country Report.

A variety of e-health projects are being funded with ESI funds. We found at least two approaches used across the EU. Firstly, several large projects are developing electronic services for healthcare systems, including electronic health records, e-tools and mobile applications (e.g. several projects in Poland supporting the development and integration of e-health systems and ICT systems to support care services in different regions, a project in Croatia, which aims at increasing the use of e-governance services in the health sector, a project in Bulgaria supporting the implementation of the National Health Information System, a similar project developing the Hungarian e-health system, and a project in Greece, supporting the implementation of modern ICT solutions to support the Health Units of the National Health Service).

Secondly, other projects are supporting specific e-health solutions for a particular disease or condition (e.g. the R-ITAREPS project in the Czech Republic developing a tool for the early diagnosis of psychotic disorder relapse, the Interreg B eMEN Interreg B project supporting a EU wide platform for e-mental health innovation, and the DIAPRO MS-APP in The Netherlands supporting a smart application that enable the combination of data from patients with multiple sclerosis to support a more accurate and better diagnosis and prognosis). Usually, these projects have a lower budget and involve beneficiaries outside of the public sector (e.g. academia and SMEs).
Theme 4: Research and innovation (R&I) in health and life sciences

By developing new concepts, ideas, services, processes, or products, research and innovation (R&I) in health can contribute to improving treatment, diagnosis, education, outreach, and prevention of diseases, therefore helping to design more effective and resilient health systems. ESI Funds can support R&I in health through different types of interventions: supporting the infrastructure needed for research and innovation, improving the skills of healthcare and industry workforces in order to contribute to Member States’ actions in innovation in health, or supporting the development of new health products and services. During the current programming period, 1,708 projects related to R&I in health have been funded by ESI Funds in 20 Member States for a total budget of approximately EUR 1.8 billion. Around half of these projects (56%) are in Spain, followed by numerous R&I health projects funded in Italy, Portugal, the three Interreg cooperation programmes and Poland. Overall, both the number of projects and their approximate budget reflect the emphasis on R&I as highlighted by the Europe 2020 strategy and its Innovation Union flagship. Moreover, actual spending figures could also be much higher, given that information about the budget was not available for around 52% of the projects.

Many ESI Funded projects are investing on the development of innovative products and processes in various areas considered EU health policy priorities (e.g. addressing cross-border threats such as emerging antimicrobial resistance). As evidenced by the 10 exemplary projects, ESI Funds have been allocated to projects contributing to the topic of healthy ageing, the development of innovative solutions to fight health challenges such as antimicrobial resistance (e.g. the i-4-1 health in Belgium and the Netherlands), and the quest for diagnostic and therapeutic solutions for neurodegenerative and chronic diseases increasingly affecting EU’s ageing population (e.g. the SAIFAD and INOVA4health projects). Two of the 10 exemplary projects are using ESI Funds to promote open and collaborative R&I (e.g. the COILED and REFBIO II projects).

A key element of these ESI Funded projects identified is the development of collaborations between different research organisations, public authorities, SMEs and other relevant actors. With the support of ESI Funds, these entities are collaborating to develop innovative solutions for healthcare. In addition to inter-sectoral collaboration, Interreg projects in R&I in health are also important in terms of numbers and budget, which also emphasises the importance of cross-border research in fostering positive knowledge spillovers (e.g. the i-4-1 health and health-i-care Interreg projects). In some cases, these projects, as well as the collaborations they promote, can also contribute to addressing the gaps between Member States and regions, which is a key goal of investing ESI Funds in R&I.

Theme 5: Active and healthy ageing, healthy workforce, health promotion and disease prevention

Active and healthy ageing, health promotion and disease prevention, and interventions to support a healthy workforce aim to foster healthy lifestyles of the population and prevent negative impacts of various risk factors. While health promotion and disease prevention have been identified as key areas of investment within the EU, most Member States seem to make insufficient use of opportunities for substantial gains in disease prevention and health promotion through mainstreaming them in other policies. ESI Funds can contribute to address some of these gaps.

2,535 projects related to this theme were identified, which represents 34% of the total number of projects and EUR 2 billion (24% of total health investments by ESI Funds). These projects were found in 25 Member States, with a particular concentration of projects in Poland (1,776 projects) and Germany (216 projects). This theme has the largest number of projects and spending compared to the others. Many ESI Funded projects focus on supporting employability and social integration – these are mostly projects supporting reintegration of the unemployed (including persons with disabilities) into the labour market. These
projects contribute to health objectives through measures supporting social inclusion of people with health problems. Another large group of projects relates to ‘active and healthy ageing’, including life-long learning and coaching for people aged 50 and over. Fewer projects support interventions related to health promotion and disease prevention; these frequently address prevention through screening programmes targeting specific diseases such as cancer, or by raising awareness about various risk factors and promoting healthy lifestyles.

Many of the projects, especially those targeting employability of people with disabilities, follow a single or similar pattern (e.g. those in Poland, Slovakia, Germany, Belgium and UK). Countries with the highest budgeted amounts for these types of interventions are indeed those where issues related to the relatively low employment rates of older workers, the need for life-long learning and/or problems with ensuring adequate long-term care for older people have been noted in the European semester country reports. However, a few Member States with pronounced problems in these areas (e.g. Bulgaria, Croatia and Romania) have not (yet) funded projects in this area or have funded a very low number of them. It is important to add however, that unemployment among older workers, the need for life-long learning and issues related with ensuring adequate long-term care for older people might be tackled also by projects that are not health related and were not therefore identified in the context of this study.

Good practices have been found across the Member States - from projects supporting the employability of disadvantaged groups such as people living with disabilities, to those providing long-term care for the elderly and dependent persons (projects in Poland), and to those addressing health risks and encouraging prevention and health promotion interventions (e.g. projects in Croatia and Slovenia). Many of these projects are fostering cooperation among various stakeholders and supporting the implementation of national and/or EU guidelines, and could be potentially replicated in other Member States.

**Theme 6: Health workforce**

The health workforce includes a range of workers in the healthcare sector - from those delivering healthcare services such as doctors, nurses, dentists, midwives, and pharmacists, to allied health professionals, public health professionals, health management and administrative and support staff. Due to EU's ageing population, the demand for healthcare is dramatically increasing with significant consequences for healthcare systems. At the same time, most Member States are currently facing critical health workforce shortages. Supporting the development and maintenance of a secure and qualified health workforce is an important and cross-cutting issue for EU public health policy and an important area for the use of ESI Funds.

While a relatively small number of projects are directly support the health workforce (275 out of 7,404 or around 4 % of total projects), the total spending for this theme is around EUR 0.98 billion- or around 12 % of the total spending. Among the identified projects there is a mix of smaller projects that aim to meet the individual needs of local institutions or communities to improve the technical skills of health care workers, and a number of very large projects that aim to build relevant skills across different institutions and regions.

The relatively few projects in this theme and higher expenditure reflects the contribution of very large projects funded in some Member States (e.g. Bulgaria, Croatia, Greece, Latvia, Slovakia) that will train health workforce studies and professionals across the country. These countries have pronounced health workforce shortages, and this has been noted in the European semester country reports. However, some countries with shortages and skills needs (e.g. Hungary) have not (yet) funded projects in this area.

There is a focus on targeted skills building and training among the projects and less emphasis on workforce planning, recruitment and retention strategies or other structural issues. A possible explanation for this is
that Member States might be tackling these strategic issues through their own public administration budgets, while ESI funded projects are tackling the locally-driven specific skill needs. That said, there are some innovative good practice examples from across the Member States that tackle important problems such as bottom up-identified training needs, entrepreneurial and managerial skills, and support for more graduates in different health areas.
Introduction

ESI Funds and Health

The European Structural and Investment (ESI) Funds invest in job creation and a sustainable and healthy European economy and environment. The total budget of the ESI Funds is nearly EUR 351.8 billion, which represents more than half of the total EU budget. It is estimated that thanks to ESIF health investments, 41.7 million people in the EU will benefit from improved health services from 2014 to 2020. The ESI Funds provide financial support to health investments in order to improve access to healthcare, reduce health inequalities and boost healthcare reforms. Through supporting health objectives, the ESI Funds contribute to the wider goals of the Europe 2020 strategy - health is seen both as a ‘growth-friendly’ investment and also as a value in itself.

In its 2013 ‘Investing in health’ document, the European Commission issued three recommendations about health investments: (1) spending in a smart way but not necessarily spending more in sustainable health systems; (2) investing in people’s health, particularly through health promotion programmes; and (3) investing in health coverage as a way of reducing inequalities and tackling social exclusion. This broader approach to investing in health as key determinant of overall socio-economic well-being represents a shift from the tendency to focus on investments in health infrastructure, in particular hospital-based care, which has been documented in the research on the programming and spending since the early 2000s.

An important element guiding the programming and spending of ESI Funds and driving reform in the health sector is the European Semester process - the EU’s cycle of economic policy guidance and surveillance. Given the important impact of health on public spending and social protection, health has gained prominence at the European Semester process during recent years. The European Semester ultimately aims to support Member States in achieving the structural reforms necessary to achieve the goals of the Europe 2020 strategy. The ESI Funds are tools to support this, and as such, spending should be in line with the broader goals set forth in the Annual Growth Survey (AGS), and the Country-Specific Recommendations (CSRs) issued annually. The consistency between the European Semester process and the country-specific recommendations has been ensured at the programming stage through targeted investment and ex-ante conditionalities, and an assessment of the consistency between the 2014-2020 OPs and the 2016 CSRs has shown that there is no need to re-programme the Operational Programmes.

ESI Funds for Health project

The ESI Funds for Health is an EU-funded project, running from January 2017 to December 2018 with three main objectives: (1) to gather knowledge on health investments by the ESI Funds; (2) to assess how such investments contribute to health policy goals; and (3) to build knowledge and capacities to support implementation of the ESI Funds for health.

This analytical report is based on the results of the first phase of the ESI Funds for Health project, which focused on the collection of data and information about the health-related projects funded to date across

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5 A brief overview of ESI funds for health can be found in the factsheet ‘Health investments by European Structural and Investment Funds (ESIF) 2014-2020, available at: https://ec.europa.eu/health/sites/health/files/health_structural_funds/docs/esif_factsheet_en.pdf
7 Neagu, OM et al, Addressing health inequalities by using Structural Funds: a question of opportunities, Health Policy (2016), http://dx.doi.org/10.2016/j.healthpol.2017.01.001
8 Ex ante conditionality 9.3 in the Common Provisions Regulation for ESI Funds (Regulation 1303/2013) addresses health and requires: ‘The existence of a national or regional strategic policy framework for health.’
10 http://esifundsforhealth.eu/
the EU Member States. Based on the information collected about 7,404 health-related projects funded with ESI Funds, this report analyses how these investments relate to EU and national health policy goals, targets and needs. The analysis is also based on a more in-depth study carried out on a group of 63 exemplary projects representing a diverse group of projects with good practices that might be replicated in other Member States.

While previous reviews by the European Commission as well as external research have focused on the extent to which the Operational Programmes (OPs) prepared by Member States’ to govern and plan ESI Fund spending during 2014-2020 support health at the strategic level, the ESI Funds for Health project assesses the actual investments funded to date across the Member States. In doing so, the project attempts to draw conclusions about the extent to which the investments correspond to health policy priorities at the EU level, as well as to the structural reforms discussed in the Member State country reports and in particular the CSRs addressing health.

Each of the 7,404 ESI Funded projects identified in the first phase of this study was classified under one of the 6 health-related themes listed below for the purposes of assessing the extent to which ESI funded investments are used to support different aspects of health policy:

- Theme 1: Improving access to healthcare;
- Theme 2: Support to reform processes towards effective and resilient health systems;
- Theme 3: Uptake of e-health/digital solutions;
- Theme 4: Research and innovation in health and life sciences;
- Theme 5: Active and healthy ageing, healthy workforce, health promotion and disease prevention;
- Theme 6: Health workforce.

Structure and contents of the report

Building on the overall policy context, the analysis of project spending on health for 2014-2020 has been carried out separately for each individual health theme. This report is therefore structured as following. The first section explains the methodology used to collect and process data on ESI Fund spending on health-related projects during the 2014-2020 period, including data collection challenges and key points for interpretation of the results. This section also presents the collective findings on health projects across all Member States and all health themes.

Six specific sections for each health theme present: (1) an overview of the theme and EU policy developments in the thematic area; (2) a review of the recommendations stemming from the European Semester process related to the theme, identifying Member States that have particular needs and challenges based on recent country reports and Country-Specific Recommendations (2015-2018); (3) spending priorities for ESI Funds and programming results 2014-2020 based on the Operational Programmes relevant for each health theme (i.e. what Member States planned to do during the programming period, based on their Investment Priorities, Specific Objectives and programme-level indicators); (4) a look at spending trends across the Member States and how they relate to policy developments; (5) an overview of the 63 exemplary projects that provide a more in-depth look at how ESI Funds are addressing specific health-related issues; and (6) concluding remarks about how ESI Funds are being used in each health-related theme, good practices, and areas identified for future development.

There are several detailed annexes to the report, which contain the research results:

- Annexes 1.1 - 1.6: 6 thematic mapping documents with detailed statistics on Operational Programmes and projects funded to date for each theme.
• Annex 2: 28 Country fact sheets and 3 Interreg mapping documents presenting all the findings regarding health-related programmes and projects.
• Annex 3: Project fiches providing details for each of the 63 exemplary projects.
Methodology and overall findings

Collecting data on actual spending for health-related projects across all the EU Member States is a challenging undertaking. Health does not have a dedicated specific objective; yet health investments cut across a variety of objectives and investment priorities. Additionally, the authorities in Member States have vastly different approaches to supporting projects and to publishing information about them. The strategy and approach taken to pull together a database of all health-related projects funded across the Member States was the following:

1. Member States are required to publish ‘lists of operations’ funded for each OP\textsuperscript{11}, this information should be easily available on the internet according to the provisions of the Regulation. As all information is published in national languages only, a large team of ‘country experts’ possessing the necessary language capacities was put in place for the project.

2. To ensure consistency and quality in the mapping and coding of projects, a detailed guidance document was prepared for the team of country experts and a training session was conducted to explain the work to them.

3. Based on the previous work carried out, country experts reviewed all OPs for each Member States and identified those relevant for health. This included 197 national/regional OPs as well as all 76 INTERREG programmes\textsuperscript{12}. A previous project had identified the OPs that were relevant for health-investments\textsuperscript{13}

4. To get an understanding of how health-relevant projects could be funded across the different OPs, country experts reviewed each relevant OP to identify the health-relevant Investment Priorities and specific objectives\textsuperscript{14} linked to the six project health themes. Furthermore, information about health-specific indicators formulated at OP-level was also collected.

5. To gather data on projects funded so far, country experts accessed the lists of operations from the relevant websites\textsuperscript{15}. These lists had very different formats across the Member States and contained varying levels of detail. Most projects (96% in total) had information about budgets and some included also amounts of EU funding and national co-financing, some had project descriptions, and some only project titles. The lists of operations were available for nearly all the OPs identified as health-relevant - although for some the information was not publicly available. They were initially accessed in March/April 2017, in August/September 2017 to check for updates and lastly in July 2018\textsuperscript{16}.

6. To identify health-relevant projects from the lengthy lists of operations published for each OP, the country experts conducted searches using key words identified by the project team for each theme and sub-theme (see Annex 1 for a list and description). Given the breadth and complexity of the topic, the potential overlaps between the themes and sub-themes and the limited information available for many of the projects (e.g. titles of projects were not always clear, and descriptions of projects were not available for all projects), country experts had to use their own

\textsuperscript{11} Article 115 of the Common Provisions Regulation on ESI Funds (Regulation 1303/2013) requires Member States to maintain a list of operations by OP and Fund in a spreadsheet data format, which allows data to be sorted, searched, extracted, compared and easily published on the internet, for example in CSV or XML format. This list should be updated every six months.

\textsuperscript{12} INTERREG implements the European Territorial Cooperation objective, and has three strands: cross-border (INTERREG A); transnational (INTERREG B) and interregional (INTERREG C).

\textsuperscript{13} Ernst & Young, Mapping the use of European Structural and Investment Funds in health in the period 2007-2013 and 2014-2020 programming periods, 2016.

\textsuperscript{14} Investment Priorities are set forth in the fund-specific regulations for ESF (Regulation 1304/2013) and ERDF (Regulation 1301/2013); specific objectives are developed by the Member State authorities as part of the planning process.

\textsuperscript{15} These included the national ESIF websites of each Member State, the websites of the Managing Authorities in each Member State, OP-specific websites and the websites of the Interreg programmes.

\textsuperscript{16} The lists of Member States were reviewed in September 2017 for all OPs, with the exception of the Spanish and Romanian OPs and some regional OPs in Greece and Italy, which had not been published at that time. These latter were subsequently collected and reviewed in July 2018. No health-relevant projects were found in Malta.
judgement to identify and classify health-related projects. The project team performed a quality and consistency check of all project theme/sub-theme assignments during the exercise.

7. All of the information collected was put into a factsheet for each country. The factsheets present information about relevant OPs and projects for each health theme, based on the information available in the OPs and the lists of operations published by the authorities. Information collected for the projects included the following: title; beneficiary; objective/summary; start/end dates; source of funding; budget; co-financing rate; category of intervention.

The information collected for each country on projects funded to date was collected into an Excel database, which allowed for filtering of projects by country, theme, sub-theme as well as aggregation of statistics such as numbers of projects and amounts spent. This database facilitated the preparation of aggregated statistics for each theme on programmes and projects. These statistics in turn facilitated the analysis of spending trends with regard to policy priorities, as well as the selection of exemplary projects, all of which are presented in this report in the separate chapters for each health theme.

Overall findings

Based on the data collection method described above, The research identified and mapped a total of 7,404 projects across Member States and Interreg programmes. Of this total number, the number of Interreg projects is 221 or 3% of all projects. Most projects are funded in Poland, Spain, Germany, Bulgaria and Italy.

Figure 1 Distribution of all identified health-related project by Member State and INTERREG strand

When looking at project budgets, the picture is somewhat different. The total budgets (including both EU funds and national co-financing amounts) for the majority of projects identified (information on budget was not published by authorities for around 4% of the projects) amounts to over EUR 8 billion\(^\text{17}\). This implies an average project budget of approximately EUR 1.2 million.

\(^{17}\) These estimations are based on the available budget information, for 7,114 (96%) of the 7,404 health projects, and include ESI funding and any national co-financing.
Figure 2 provides an overview of the budget, which is impressive, given that the information was gathered only mid-way through the funding period and also given the estimate from the European Commission factsheet of around EUR 9 billion for the total period 2014-2020, which included investments linked to active ageing and social services. It should be noted that while the data collection process for this work made efforts to focus only on health-related projects, given the cross-cutting nature of health and the fact that many projects are large and complex and multi-purpose, it is likely that some of the funding identified here might support health only indirectly.

Figure 2 shows the total budgets of all identified projects by Member State and INTERREG programmes. The highest amounts of spending on health-related projects are in Poland, Spain, Portugal, Hungary and the three Interreg programmes combined. The average project size is around EUR 1.2 million.

Most health projects identified are supported by the ESF (4,242 projects or around 57% of the projects). The co-financing rate is available for the majority of projects (68% of all projects) and the average co-financing rate is 78% (the lowest is 13% and the highest is 100%).

Figure 2 Total budgets of all identified projects by Member State and INTERREG programmes*

*Based on published data by Member States available for 96% of projects identified.

Looking at the six health themes, the projects are not evenly spread out. Most projects are implemented for the theme of health promotion, active and healthy ageing (theme 5), followed by projects on health system reforms (theme 2) and research and innovation (theme 4). The most budget is spent on theme 5 projects (around EUR 2 billion) followed by themes 4 and 2.

The amount of budget spent so far on each theme largely correlates with the numbers of projects. These amounts are shown in Figures 3 and 4.

In most Member States multiple themes are supported with health projects. The exceptions are Austria, Cyprus and Ireland, where only theme 5 projects are funded. The following figures show the number of
projects per theme, and the amount of budget per theme respectively in each Member State and INTERREG programmes.

**Figure 3 Number of projects per health theme**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Number of Projects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1: Improving access to healthcare</td>
<td>923</td>
<td>12%</td>
</tr>
<tr>
<td>T2: Reform of health systems</td>
<td>1738</td>
<td>23%</td>
</tr>
<tr>
<td>T3: E-health</td>
<td>225</td>
<td>3%</td>
</tr>
<tr>
<td>T4: Research and Innovation</td>
<td>1708</td>
<td>23%</td>
</tr>
<tr>
<td>T5: Health promotion</td>
<td>2535</td>
<td>34%</td>
</tr>
<tr>
<td>T6: Health workforce</td>
<td>275</td>
<td>4%</td>
</tr>
</tbody>
</table>

**Figure 4 Total budgets of all identified projects per health theme**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Budget (€)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1: Improving access to healthcare</td>
<td>€ 1288535642 (15%)</td>
<td></td>
</tr>
<tr>
<td>T2: Reform of health systems</td>
<td>€ 1633348675 (20%)</td>
<td></td>
</tr>
<tr>
<td>T3: E-health</td>
<td>€ 608078173 (7%)</td>
<td></td>
</tr>
<tr>
<td>T4: Research and innovation</td>
<td>€ 1820635842 (22%)</td>
<td></td>
</tr>
<tr>
<td>T5: Health promotion</td>
<td>€ 2001374781 (24%)</td>
<td></td>
</tr>
<tr>
<td>T6: Health workforce</td>
<td>€ 978561040 (12%)</td>
<td></td>
</tr>
</tbody>
</table>
Theme 1: Improving access to healthcare

Background and policy context

Access to healthcare is the concept measuring the proportion of a population that reaches appropriate health services. Evidence shows that a higher degree of access to healthcare improves people’s overall health status, is essential for a good quality of life, prolongs life expectancy and decreases health inequalities. Better access to high-quality healthcare services, along with effective disease prevention and social protection policies can address health inequalities, reducing social exclusion and poverty, which is a headline target of the Europe 2020 strategy. At the same time, timely access to healthcare can prevent higher healthcare costs in the long run, increase productivity of the workforce and facilitate people’s active participation in society, as emphasised in the European Commission’s Social Investment Package18. Eurofound suggests a variety of policy solutions to guarantee access to healthcare in times of crisis, stating that simple cost-cutting solutions may incur higher costs in the long run19.

As included in the EU Charter of Fundamental Rights, all citizens have the right to access to preventive healthcare and the right to benefit from medical treatment20. The EU has long recognised the need to ensure universal access to healthcare; in 2006 the Council of Health Ministers included access to good quality as one of the four common values in EU health systems. In recent years, the EU has emphasised the need for continue efforts to maintain (or improve, where necessary) access to health to uphold the social and economic wellbeing of Europeans.

The European Commission, in 2014, made increasing the accessibility of healthcare one of three key actions outlined in its Communication on effective, accessible and resilient health systems, which focused on (1) strengthening the effectiveness of health systems, (2) increasing the accessibility of healthcare, and (3) improving the resilience of health systems21. The Communication clearly states that financial sustainability while maintaining equal access to quality care is key and that health systems are to be addressed at Member State level. Accessibility here describes (the result of) the interaction between health system coverage, depth of coverage, affordability and availability of healthcare services. Inequalities still exist in times of universal or almost universal healthcare coverage in Member States, suggesting that some people from disadvantaged backgrounds are still excluded from adequate health coverage. Identified factors that help health systems safeguard accessible and effective healthcare services are financial aspects (stable funding and proper costing), good governance and communication, and a competent health workforce. Accordingly, affordable costs for treatment are crucial to improve access to healthcare

In 2011, the European Council issued its Conclusions for modern, responsive and sustainable health systems22, noting the urgent need to ensure equitable access to high quality health care services in the face of fiscal pressures arising out of the economic crisis. Access to health care is also an important component of the European Pillar of Social Rights23, which builds on and complements the EU social

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20Charter of Fundamental Rights of the European Union, Article 35

15
acquis\textsuperscript{24}, and guides social and employment policies. The Pillar of Social Rights serves as a reference framework to screen the performance of employment and social policies in Member States and help drive reforms at national level.

While in theory nearly all EU countries provide universal access to healthcare for their citizens, the reality looks different with various social groups often experiencing difficulties in accessing the care they need. Multiple factors can influence this, such as lack of healthcare coverage, distance from healthcare facilities, the price and quality of medicines, as well as the presence of healthcare staff with the right skills. Specific population groups may be particularly vulnerable to the risk of poor access to healthcare circumstances due to social and/or economic factors.

Through the European Semester process, particular access to healthcare needs have been identified in some Member States. During the period 2015-2018, access to healthcare was included in the CSRs for Bulgaria, Cyprus, Finland, Ireland, Latvia, Lithuania, Portugal, Romania and Slovenia. These include challenges such as ensuring access for populations in geographically remote areas, reducing out-of-pocket (including informal) payments for services, reducing waiting times for treatments, and increasing overall funding for healthcare.

Health Inequalities

Many EU policies recognise improving (universal) access to healthcare as crucial to reducing health inequalities\textsuperscript{25}. These inequalities in terms of health status and life expectancy persist between as well as within countries between people with higher levels of education and income and the more disadvantaged. They exist along both social and demographic dimensions and are also determined by other factors, like health behaviour, environment or health education. Conservative measures estimate the economic loss due to health inequalities at between 1.5-9.5\% of GDP\textsuperscript{26}.

The Health at a Glance series builds upon the 2014 Communication (see above) and gauges progress towards effective, accessible and resilient health systems in Europe\textsuperscript{27}. It describes universal access to care as critical to reducing health inequalities and states that ‘in 2014, poor people were ten times more likely to report unmet medical needs for financial reasons than rich people on average across EU countries. Any increase in unmet care needs may result in poorer health status for the population affected and thereby increase health inequalities.’ It is positive that ‘many EU countries have taken measures in recent years to strengthen access to primary care providers for all the population wherever they live, to reduce inequalities in access and avoid unnecessary hospitalisations.’ This is echoed by the recently published country profiles and their overarching companion report\textsuperscript{28}.

\textsuperscript{24} The social acquis\textsuperscript{ is the part of the acquis communautaire that includes the body of laws (Treaty provisions, regulations, directives, decisions, European Court of Justice (ECJ) case-law and other Union legal measures, binding and non-binding), principles, policy objectives, declarations, resolutions and international agreements defining the social policy of the EU. More information, available at: http://www.eurofound.europa.eu/printpdf/observatories/eurwork/industrial-relations-dictionary/social-acquis


The European Union has long recognised the importance of addressing health inequalities. Almost a decade ago, the European Commission published a Communication on ‘Solidarity in Health: Reducing Health Inequalities in the EU’, which set out actions to achieve this goal\textsuperscript{29}. It included collaboration with national authorities, regions and other bodies, assessment of the impact of EU policies on health inequalities, regular statistics and reporting on the size of inequalities in the EU and on successful strategies to reduce them, and better information on EU funding to help national authorities and other bodies address the inequalities. In this context, it pointed to the EU Cohesion Policy as “important in achieving the Lisbon objectives of economic and social cohesion and [being] a powerful tool to address health inequalities.”

The Health programme is part of the EU’s Multiannual Financial Framework 2014-2020\textsuperscript{30}. It aims to strengthen the link between economic growth and a healthy population and is geared towards measures in line with the Europe 2020 objectives. The programme has four objectives; one of which is to increase access to better and safer healthcare for all EU citizens. It states, ‘improving access to healthcare for all citizens regardless of income, social status, location and nationality is key to bridging the current substantial inequalities in health’. The document calls for complementing actions under the various European Commission programmes addressing social and regional disparities in Europe.

In line with the main message of the Investing in Health Staff Working Document (European Commission, 2013) that health is a value in itself, the European Commission has highlighted that investing in health coverage may be a way of reducing inequalities and tackling social exclusion.\textsuperscript{31} At times, investing both in health systems and in reducing health inequalities go together, however broader social aspects are also important to consider here. The document underlines that, while reforms to health systems are necessary to ensure the sustainability, efficiency and resilience of health systems, this should not be at the expense of equitable access. Improved access to primary care is mentioned as an effective way to reform care systems with positive effects on health equity.

There is a growing recognition of the need to address the social and economic factors that impact health. ‘Soft’ and social investments are effective because health inequalities arise from the social conditions in which people are born, grow, live, work and age (i.e. social determinants of health such as education, environment, employment).\textsuperscript{32} This is why the European Pillar of Social Rights with its different principles is relevant to health in general and access to healthcare in particular. A Joint Report of DG ECFIN and the Economic Policy Committee also highlights the need for public health policies to consider socio-economic determinants of health to achieve fiscal sustainability of Europe's care systems.\textsuperscript{33}

Health in All Policies (HiAP)

Given these issues, social dimensions should thus be not ignored in access to healthcare. Discrimination, social exclusion and unequal treatment contribute to reduced access to healthcare for various groups. Investments in infrastructure need to go hand in hand with ‘soft’ investments, e.g. addressing staff shortages (human resources) or costs of treatment and need to be balanced and embedded in a broad policy. Social care, housing, environment, transport and agriculture need to play a role as well as fiscal measures.

Consequently, the concept of health in all policies (HiAP) is crucial. This approach describes public policies across sectors that systematically take into account the health and health systems implications of

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\textsuperscript{29} European Commission, Communication on Solidarity in health: Reducing health inequalities in the EU, 2009, \url{http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1396946539740&uri=CELEX:52009DC0567}


\textsuperscript{31} \url{https://ec.europa.eu/health/sites/health/files/strategy/docs/swd_investing_in_health.pdf}


\textsuperscript{33} \url{https://ec.europa.eu/info/publications/joint-report-health-care-and-long-term-care-systems-fiscal-sustainability_0_en}
decisions, seeks synergies and avoids harmful health impacts, in order to improve population health and health equity.

The Expert Panel on Effective Ways of Investing in Health, which provides non-binding advice to the European Commission, states that access is a multi-dimensional issue, which requires intersectoral policy responses, and finds barriers at the levels of the individual, health service providers as well as the entire health system. Various policy domains (e.g. fiscal, social, education, employment) can affect access.

In October 2016, DG Economic and Financial Affairs (ECFIN) and the Economic Policy Committee (Ageing Working Group, consisting of Member State representatives) released a Joint Report on Health Care and Long-Term Care Systems & Fiscal Sustainability that set out challenges and policy options for healthcare and long-term care towards fiscally sustainable access to good quality services for all. The demographic changes, technological advances and increased debt in most countries are putting strong and growing fiscal pressures on curative healthcare and systems in all EU Member States. The Joint Report highlights the need for public health policies to consider socio-economic determinants of health as well as health inequalities. Furthermore, it becomes clear that the HiAP approach calls for commitments from governments to health as a political priority. To address the issues of reduced access it was recommended to strengthen both primary and integrated care.

Multi-sectoral partnerships

Successful tackling of health inequalities calls for multipronged, intersectoral actions that also involve citizens, the private sector and actors beyond healthcare. The Joint Report on the fiscal sustainability of care systems, mentioned above, highlights the need for policies to be developed as integrated multi-sectoral and multi-stakeholder initiatives. Particularly, in times of economic crises and austerity measures, successful replacement of funds particularly depended on the establishment of effective alliances with local governments, NGOs and businesses.

Work in Equity Action showed that “making real progress to reduce health inequalities requires commitment beyond the health sector. Governments and sectors must work together to change their approaches to ensure that policies and practices improve conditions for the more and most-deprived segments of the population, and do not exacerbate inequalities”.

Addressing the needs of vulnerable groups

Certain sub groups of the population (vulnerable groups) - e.g. migrants, people with low health literacy, ethnic minorities, and people living in remote areas - experience systematic barriers, such as social stigma, language or cultural barriers, which prevent them from accessing to healthcare services. Consequently, limited accessibility to healthcare impacts people’s ability to reach their full potential and negatively affects their quality of life and health outcomes.

In its 2013 Investing in Health Staff Working Document, the European Commission stated that the impact of the economic crisis “threatens to increase health inequalities between social groups and between Member States”. It becomes clear that multi-sectoral action is required to address these issues, which also means to prioritise less advantaged groups and to address risk factors as unhealthy behaviour often

leads to amplified adverse health outcomes in less advantaged groups. Clearly, vulnerable groups are disproportionately affected by crises (economic or otherwise); healthcare coverage is therefore necessary for adequate livelihoods and can help reduce poverty.

The EC Expert Panel on Effective Ways of Investing in Health finds three groups of people, who are systematically underserved: Roma, undocumented migrants and people with mental health problems and recognised eight policy areas around key access problems:

1. Financial resources linked to health need;
2. Services affordable for everyone;
3. Relevant, appropriate and cost-effective services;
4. Facilities within easy reach;
5. Staff with the right skills in the right place;
6. Quality medicines and medical devices available at fair prices;
7. Everyone can use services when they need them;
8. Services acceptable to everyone.

In response to the recent migrant crisis, the Action Plan on the Integration of Third Country Nationals (2016) acknowledged that “ill health and lack of access to health services can be a fundamental and ongoing obstacle to integration, with an impact on virtually all areas of life and shaping the ability to enter employment, education, learning the host country’s language and interacting with public institutions”, the European Commission has mobilised substantial resources and funded several projects to support healthcare systems in the EU Member States facing particular migratory challenges. For example, DG Sante earmarked €14.7m from the Health Programme (2014-2020) to support actions aiming at improving the state of health of refugees and migrants, including personal health record as part of the RE-HEALTH action, whose aim is to evaluate their medical needs and reconstruct their medical history at the hotspots.

It is only through a complementary usage of available funds covering integration programmes that the vulnerability of third-country nationals can be decreased. Attention needs to be paid to all the social determinants of health, e.g. education, employment, housing, social security, to safeguard their successful integration in the EU. As Health and Food Safety Commissioner Andriukaitis declared “If they cannot access employment or education, they cannot integrate into the host country. They will be marginalised and the impact on their health will become a downward spiral.”

In order to continue the integration process of third-country nationals, once they have acquired refugee status or at the latest nine months after they have applied for it, EU Member States can also use the ESF for education, employment and social inclusion projects, the ERDF for financing related infrastructural measures, and EAFRD to support job creation and the provision of basic services and actions for social inclusion. Many other financial instruments are available to MS, including the Asylum, Migration and Integration Fund (AMIF) and the Internal Security Fund (ISF).

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43 The Personal Health Record: [http://ec.europa.eu/dgs/health_food_safety/docs/personal_health_record_english.pdf](http://ec.europa.eu/dgs/health_food_safety/docs/personal_health_record_english.pdf)


46 [http://ec.europa.eu/agriculture/rural_development/index_en.htm](http://ec.europa.eu/agriculture/rural_development/index_en.htm)
Structural reforms at the Member State level: the EU semester process

Access to health is recognised as a central condition for economic growth in the European Semester process. In the Annual Growth Survey 2018, which launches the European Semester process and focuses on the economic reform policies for the year, ensuring access to health is necessary to maintain the labour force and reduce barriers to employment, particularly for disadvantaged groups, such as single parent households, people with disabilities, ethnic minorities, refugees and migrants. Affordable, accessible and quality health services are recognised as ‘essential for ensuring equal opportunities for all’\(^47\).

At the Member State-level, the European Semester country reports and Country-Specific Recommendations (CSRs) in recent years have made a number of observations on how Member States can improve access to health. In recent country reports (2015-2017), issues relating to access to health have been noted:

- Some countries need to take measures to improve access to health overall to improve health outcomes. Low public funding, limited health insurance coverage, health workforce labour shortages, and high out-of-pocket expenses for patients are often a factor in these countries. (BG, HU, LV, PL, RO, SK). Often in these countries, vulnerable groups are disproportionately impacted by access to health issues (HU, RO). In some cases, risks to the long-term sustainability of the health system have been noted as a potential threat to access to health in the future (ES, SI, UK).
- In a number of countries, access to health for the general population is recognised as strong, however disadvantaged groups may suffer from limited to access to health services, potentially leading to health inequalities (BE, FR, IE, IT, PT)
- Long waiting periods for health services, particularly specialist care, have been noted in some countries, often resulting from inefficiencies in the health system (CY, EE, LV)
- Access to health issues due to the specific geographical conditions of the country were noted in Croatia.

In 2017, CSRs for six Member States include recommendations relating to improving access to health, as detailed in the table below.

Table 1 CSRs related to access to health in 2017 European Semester process

<table>
<thead>
<tr>
<th>Member State</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve healthcare coverage and overall access</td>
<td></td>
</tr>
<tr>
<td>Bulgaria</td>
<td>Increase health insurance coverage, reduce out-of-pocket payments and address shortages of healthcare professionals.</td>
</tr>
<tr>
<td>Cyprus</td>
<td>By end-2017, adopt legislation for a hospital reform and universal health care coverage.</td>
</tr>
<tr>
<td>Slovenia</td>
<td>Adopt and implement the proposed reform of the healthcare system and adopt the planned reform of long-term care, increasing cost-effectiveness, accessibility and quality care.</td>
</tr>
<tr>
<td>Reduce out-of-pocket payments (including informal payments) and improve affordability</td>
<td></td>
</tr>
<tr>
<td>Bulgaria</td>
<td>Increase health insurance coverage, reduce out-of-pocket payments and address shortages of healthcare professionals.</td>
</tr>
<tr>
<td>Latvia</td>
<td>Increase cost-effectiveness and access to healthcare, including by reducing out of pocket payments and long waiting times.</td>
</tr>
<tr>
<td>Lithuania</td>
<td>Improve the performance of the healthcare system by strengthening outpatient care, disease prevention and affordability.</td>
</tr>
<tr>
<td>Romania</td>
<td>In healthcare, shift to outpatient care, and curb informal payments.</td>
</tr>
<tr>
<td>Reduce waiting times</td>
<td></td>
</tr>
</tbody>
</table>

\(^47\) European Commission, Annual Growth Survey 2018, COM(2017) 690 final, p.6
In its communication on the CSRs, the European Commission noted that contributing factors in limited access to healthcare services include ‘persistently low funding, inefficient allocation of resources, over-reliance on hospital care, large out-of-pocket payments and staff shortages’\(^{48}\). Addressing these issues will require investments across the entire health system. Investments from ESI Funds may play a crucial role, particularly in countries facing constraints on public spending for health.

**Spending priorities for ESI funds and programming results 2014-2020**

**Pre-programming guidance: the health thematic fiche**

ESI Funds have a potentially important role in improving access to health. In its Staff Working Document on health investments under the European Social Fund 2014-2020, the Commission notes that ESI Funds should support Member State investments that are focused on ‘improving access to affordable, sustainable and high-quality healthcare, in particular with a view to reducing health inequalities between regions and giving disadvantaged groups and marginalised communities better access to healthcare’\(^{49}\).

In 2014, the Commission published a practical Policy Guide for the ESI Funds, which present the areas in the health sector that the ESIF 2014-2020 can support Member States and potential beneficiaries\(^{50}\). It explains that investments for access to healthcare can be funded under both ESF and ERDF. In particular, Thematic Objective 9 Promoting Social Inclusion and Combating Poverty is applicable, stating that ‘interventions to be financed in the area of health should contribute to Member States’ actions towards EU policy goals to enhance access to healthcare services by all with special attention for vulnerable or disadvantaged groups [and] to reduce health inequalities (thus combating poverty)’. Examples of possible investments for improving access to healthcare and tackling health inequalities are provided. In addition, a two-page factsheet\(^{51}\) was released, which presents the main investment objectives (‘reducing health inequalities between regions and social groups’ and ‘more effective and accessible healthcare of high quality’), funding possibilities as well as a breakdown of programmed investments in health.

The Commission’s Policy Guide on health investments in the ESI Funds identifies specific investment types that might be supported under the Funds. While noting that most health-related investments will have some link to access to health services, the Guide identifies investment types specifically linked to Thematic Objective 9 that Member States could put in place under ESI Funds, as outlined in the box below.

**Box 1 Spending priorities to support access to health**

<table>
<thead>
<tr>
<th>Thematic Objective 9: Promoting social inclusion and combating poverty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to healthcare</td>
</tr>
<tr>
<td>• Support access to good healthcare and information in those regions where services are underdeveloped or for those disadvantaged groups that have an accessibility deficit, based on a mapping exercise to select target areas and/or groups (see Box 6 on the territorial dimension) by means of, for example:</td>
</tr>
</tbody>
</table>

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Improvements in organization of care related to opening hours, medical staff shifts, management of waiting lists, General Practitioners’ quotas of patients, choice of providers;
- Ensuring territorial access (availability of health services and workforce, technology related measures to improve tele-access, mobile services such as mobile clinics);
- Ensuring physical access (e.g. access for the disabled).

- Ensure universal and equitable access to affordable medicines, vaccination, early detection, screening, treatment, and care including rehabilitation and palliative care for diseases and conditions including HIV/AIDS, cancer, neurodegenerative diseases such as Alzheimer’s disease and other dementia, mental disorders and other major and chronic diseases.
- Implement health service improvement programmes and outreach initiatives to extend access and increase appropriateness for disadvantaged/vulnerable groups.
- Strengthen primary care, home/out-patient care, reinforce gatekeeping function, and promote key care areas which are a ‘life’ investment such as maternal and infant healthcare.
- Ensure insurance coverage (affordability), addressing socio-economic factors affecting access to care and pharmaceuticals and other medicinal products.
- Strengthen modern disease management programmes promoting an active involvement of patients to improve healthcare results.

Health inequalities
- Address risk factors that are particularly prevalent in disadvantaged population groups (e.g. tobacco consumption).
- Ensure physical activity possibilities in poorer regions/areas.
- Set up, improve or expand local healthcare basic services (including infrastructure) for the rural population (including funding possibilities under the EAFRD).
- Support to better living and housing conditions for vulnerable groups:
  - Access to acceptable standards of housing and indoor temperature;
  - Access to sanitation and water which meets EU standards.
- Bring innovations to the care systems to improve patients’ health literacy and empowerment, to promote adherence to treatment and proper follow-up care, via, for example, implementing personalised health management or identifying ‘special attention’ groups (stratification of patients).
- Support development and collection of data and health inequalities indicators by age, sex, socio-economic status and geographic dimension.

Programming: investment priorities, intervention fields, specific objectives and indicators

Investment priorities relevant to the theme of improving access to health are largely found under Thematic Objective 9 Promoting Social Inclusion and Combating Poverty. 21 Member States and 31 Interreg OPs included investment priorities relevant to access to health. With clear, direct links with the theme of access to health, investment priorities ERDF 9a ERDF and ESF 9iv were the investment priorities most frequently selected investment priority in Member State operational programmes. In brief, the investment priorities commonly used in relation to access to health were:

- ERDF 9a: Investing in health and social infrastructure which contributes to national, regional and local development, reducing inequalities in terms of health status, promoting social inclusion through improved access to social, cultural and recreational services and the transition from institutional to community-based services. This Investment Priority was identified in 15 Member State Ops and ten Interreg A OPs;
- ESF 9iv: Enhancing access to affordable, sustainable and high-quality services, including health care and social services of general interest (10 Member State OPs);
• ESF 9ii: Socio-economic integration of marginalised communities such as the Roma (5 Member State OPs);
• ERDF 1b: Promoting business investment in R&I (two Member State OPs, two Interreg A OPs and three Interreg B OPs);
• ESF 9i: Active inclusion, including with a view to promoting equal opportunities and active participation, and improving employability (3 Member State OPs); and
• ETC aiv: Enhancing institutional capacity of public authorities and stakeholders and efficient public administration by promoting legal and administrative cooperation and cooperation between citizens and institutions (12 Interreg A OPs).

Despite the clear concentration of investment priorities within Thematic Objective 9, there are possibilities to fund access to health issues under other Thematic Objectives. Other Thematic Objectives identified in OPs included Thematic Objectives 1 (Research and Innovation), 11 (Improving the efficiency of public administration), and 6 (Environment). A full list of the relevant Investment Priorities for this theme and the Member States that selected them in the OPs can be found in Annex 1.1.

In their programming of measures on access to health, different Member States have identified a variety of specific objectives in their OPs, which allow for different investments in improving access to healthcare:
• Specific objectives focusing on improving access to health services for the general population are found in Hungary, with a focus on improving access to high quality public services, including healthcare services.
• A particular focus on vulnerable groups (Italy, ‘Reduction of the extreme marginalization and inclusion interventions in favour of homeless people and of Roma, Sinti and ethnic minority of Camminanti’) or on remote regional and rural areas (seen in the Estonia and Latvia).
• Access to healthcare (improving overall access while also addressing barriers to access for vulnerable groups or in remote areas) are found in Greece and Bulgaria.
• Cross-cutting specific objectives addressing both access for the broader population and access to healthcare in remote areas within the same objective (for example, Croatia, ‘Improving access to primary and emergency health care, with focus on isolated and deprived areas’).
• Specific objectives relating to the overall efficiency, effectiveness and quality of services provided, which is likely to have a beneficial impact on access to services for the general population (e.g. Croatia, Poland and Slovakia).
• Finally, a particular approach was found in the Regional OP for Lower Saxony (Germany), which contains a specific objective related to improving access to health and social care services by testing and evaluating innovative approaches to improve access to healthcare. Under this OP, many small projects (383) focusing on training staff in the treatment of vulnerable groups (such as the elderly, or people living with mental illness) were identified.

A number of indicators are used to monitor the implementation of OPs in the area of access to health. For ERDF programmes, the health indicator is focused on the population (measured in number of persons) covered by improved health services, which is directly relevant to the topic of access to healthcare. For ESF programmes, the indicators focus on increased participation in employment and education - while such participation is indirectly linked to access to healthcare services, these indicators do not assist in monitoring the impact of investments on access to health.

In addition to the common indicators set out in the relevant regulations, Member States include indicators directly relevant to the theme of access to health for the relevant Investment Priorities in their OPs. These include indicators specifically monitoring the impact of investments on access to health for disadvantaged or vulnerable groups, including:
Disadvantaged participants who are engaged in job searching, education/training, gaining a qualification or are in employment incl. self-employment or are receiving social and health services, upon leaving (Bulgaria)

Roma participants who are engaged in job searching education/training, gaining a qualification, or are in employment, incl. self-employment or are receiving social and health services, upon leaving (Bulgaria)

Coverage of population of immigrants and asylum seekers receiving social care services (Greece)

Participants with disabilities or with developmental disorders that improve their social insertion and development after their participation (Spain)

Degree of coverage of patients with mental health monitoring needs (Slovakia)

Share of people (children with health disability, citizens with health disability, citizens in unfavourable social situation, seniors) to whom social service at community level is provided (Slovakia)

Percentage of coverage (health and welfare services) of the population living under the poverty line (Greece).

Some programme-specific indicators focused on access to health in geographically remote or socially disadvantaged areas, with some Member States (Lithuania and Latvia) specifically considering the difference in service provision between urban and regional areas:

- Reduction in hospital referral rates from primary health care providers in deprived/isolated areas (Croatia)
- Decline of age-standardised (0-64 years) rate of mortality from system diseases in target territories (Lithuania)
- Difference in the number of visits to physicians per person between population of urban and regional municipalities (Lithuania)
- The relative difference of outpatient visits in regional areas and big cities (Latvia)
- The number of supported health care persons who work in the territorial units outside Riga a year after support (Latvia).

A large number of programme-specific indicators measure the impact of investments on overall access to health for the general population. This is particularly seen in Bulgaria and Hungary. In some cases, these indicators are more focused on outputs rather than results:

- Population with 30-minute access to emergency medical care and treatment and observation for 24 hours (Bulgaria)
- Population covered by improved emergency medical care services (Bulgaria)
- Modernised facilities of EMC (Bulgaria)
- Purchased modern ambulances (Bulgaria)
- Population covered by social infrastructure (Greece)
- Capacity resulting from improved health infrastructure (Greece)
- Evolution of the surgical waiting list (Spain)
- Equipment rate in urban centres per 1,000 inhabitants (France)
- Number of people who received medical care during the year (France)
- The ratio of the patients who were not admitted to hospital due to long waiting lists (Hungary)
- The number of newly built or renovated clinics and councils (Hungary)
- Development of outpatient special care capacities (Hungary)
- Number of improved health care institutions with improved infrastructure for provision of health care services (Latvia)
- Average number of people per hospital emergency units (Poland)
- Average waiting time for access to level II priority hospital care (Portugal)
- Supported social and health care facilities (Portugal).

Interreg A programmes also tended to include indicators measuring access to healthcare for the general population. Given the focus of these investments on cross-border regions, it is likely that these indicators will also indirectly measure impacts on healthcare access for people in geographically remote areas. Examples of these indicators include:

- Number of agreements for access to cross-border medical services existing along borders within the cooperation area (FR-BE-DE-LU)
- Annual visits to primary Healthcare (Greece-Bulgaria)
- Annual visits to secondary/tertiary healthcare (Greece-Bulgaria)
- Number of specialised doctors working on a cross-border basis in the area (France: Mayotte-Comores-Madagascar).

Projects supporting access to healthcare 2014-2020

A full mapping of Member State investments in the theme of access to healthcare is provided in Annex 1.1. The project has identified 7404 health-related projects, of which 923, or around 12%, support improving access to healthcare. The share of all projects across thematic blocks is depicted in the following figures. In terms of budget, these projects represent nearly 1.3 billion or around 15% of all health projects identified.

16 Member States have funded investments in the area of access to healthcare. Around a third of these projects are in Germany, following by a significant number of projects in Portugal, Italy, Greece and Hungary. No projects supporting access to healthcare were found in Austria, Bulgaria, Cyprus, Czech Republic, Denmark, Ireland, Luxembourg, Latvia, the Netherlands, Romania, Slovakia and the UK. 40 relevant projects are also financed under the Interreg A and B cooperation programmes. An overview of the projects within the Member States is provided in Figure 5 below.

Figure 5 Improving access to healthcare projects per Member State and INTERREG programme

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For around 7% of the thematic block 1 projects budget information was not available.
Although Germany has 385 projects on improving access to health care, these projects are relatively small and amount to only EUR 3.6 million in total. Italy and Greece also spend a small amount of funds on their numerous improving access to healthcare projects, around EUR 18 million and EUR 7 million respectively. Croatia has the third largest budget for thematic block 1 projects of nearly EUR 217 million. However, it is not clear whether these amounts are only earmarked or actually spent. A significant budget, around EUR 62 million, for improving access to healthcare is actually distributed through the Interreg A and B cooperation programmes. Further details about the total budgets of thematic block 1 projects is provided in Figure 6 below.

Figure 6 Total budget of improving access to healthcare projects per Member State and INTERREG programme

To better understand how investments can support improved access to healthcare, the projects in this theme have been classified according to seven sub-themes. This classification is provided in Table 2 below. (It should be noted that one project can be classified as relevant to more than one sub-theme.)

Table 2 Sub-themes for theme 1 on improving access to healthcare

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Number of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1.1</td>
<td>Improving health infrastructures</td>
<td>170</td>
</tr>
<tr>
<td>T1.2</td>
<td>Improving access of specific population groups</td>
<td>232</td>
</tr>
<tr>
<td>T1.3</td>
<td>Addressing unequal healthcare coverage</td>
<td>3</td>
</tr>
<tr>
<td>T1.4</td>
<td>Improving skills and capacities of health workers</td>
<td>392</td>
</tr>
<tr>
<td>T1.5</td>
<td>Addressing distance, price and quality of healthcare</td>
<td>187</td>
</tr>
<tr>
<td>T1.6</td>
<td>Addressing social stigma, language and cultural barriers</td>
<td>129</td>
</tr>
<tr>
<td>T1.7</td>
<td>Other</td>
<td>1</td>
</tr>
</tbody>
</table>

It should be noted that although most themes and their sub-themes are quite distinct, there are some possible overlaps between the six health themes. In this case, sub-theme 1.1 ‘improving health infrastructures’ may overlap with sub-theme 2.3 ‘investments in healthcare facilities’ efficiency and sustainability’. Nevertheless, sub-theme 1.1 is linked to issues of distance and access of socially vulnerable groups to health infrastructure, while sub-theme 2.3 covers projects that improve the energy efficiency and functioning of healthcare facilities as part of theme 2 on reform of the health systems. Projects under sub-theme 1.2 focused on specific population groups may overlap with projects under Theme 2 focused on
deinstitutionalisation measures for specific populations, particularly where projects relate to people with disabilities or people with mental illness who may be at risk of institutionalisation and also face barriers when accessing health services. The projects within sub-theme 1.2 are focused on improving these groups’ access to services, whereas the investments in Theme 2 target avoiding institutionalisation. Similarly, sub-theme 1.4 ‘improving the skills and capacities of health workers’ may overlap with theme 6 ‘health workforce’. However, investments in sub-theme 1.4 focus on the personnel’s skills and capacities to treat vulnerable groups while theme 6 concerns general improvements of their skills and professional development.

A large number of the projects in this theme (392) projects) are focused on building access to healthcare through improving the skills and capacities of health workers. This is largely due to 383 small projects in Germany focused on training staff in the treatment of vulnerable groups (for example, the elderly, people with mental illness).

Given the emphasis in the Country Specific Recommendations (CSRs) on the need to improve access for the general population in some countries by increasing funding for the health sector, and addressing barriers to access such as cost or distance, the identified ESI funded projects investing in health infrastructures, and addressing distance, price and quality of healthcare is likely to be appropriately targeting access to health. The 232 projects focusing on specific population groups (sub-theme 1.2) tend to focus on disadvantaged or vulnerable groups who may be disproportionately impacted by barriers to healthcare access. These projects focus on economically and/or socially vulnerable groups (low-income families, long-term unemployed youths, homeless populations, immigrants, Roma populations, people with disabilities, people with mental illness). Often these projects represent investments in infrastructure serving these groups.

Access to healthcare has been identified in the CSRs of some Member States (see table 1 above providing an overview of the CSRs for 2017). During the period 2015-2018, a similar mention was included in the CSRs for Bulgaria, Cyprus, Finland, Ireland, Latvia, Lithuania, Portugal, Romania and Slovenia. Of these countries, only Finland, Lithuania, Portugal and Slovenia are using ESI Funds to support access to healthcare; while no ESI funded project directly supporting access to healthcare was identified for Bulgaria, Cyprus, Ireland, Latvia and Romania.

**Exemplary projects**

To better understand how these projects are contributing to improved access to health, it is necessary to look at a sample of exemplary projects in further detail. Therefore, 12 exemplary projects have been identified and are presented in the table below. Often these projects address issues relating to distance to healthcare services. For instance, the Proximity health units project in Portugal is providing access to primary healthcare services in rural areas of the Algarve region, and the Interreg projects, Connecting Services (UK-Ireland), RemoteCARE (Greece-Bulgaria), and iSolutions to Isolation (UK-Finland), focus on access to health in remote areas, but in a cross-border or transnational context. The Proximity Labs project in Belgium also seeks to address distance issues through the use of mobile laboratory services, reducing the need for patients to travel to access healthcare services and potentially providing a model to be replicated to address healthcare access in remote areas.

In some cases, these projects focus on geographical distance may also improve access for vulnerable populations by targeting specific groups. For example, the elderly population is directly targeted in the case of the iSolutions to Isolation project. While people with disabilities are not the sole focus of the project in Medimurska, Croatia, the large population with disabilities in the county means that access to healthcare for people with disabilities will be improved through the project.
Four projects aim to improve access to health for specific vulnerable groups. The Wellbeing Kiosk project in Finland targets unemployed people to provide them with health testing services, preventative guidance and links with other health and social services. The goal of the project is to target those who would otherwise be unable or unwilling to access such services. The project in Sweden aims to improve access to health services for newly arrived migrants by carrying out a feasibility study on the health needs of this group and opportunities to meet these needs. The Slovenian project is one of only a few projects identified that specifically target the Roma population. This project aims to build the capacity of health professionals in treating members of the Roma community and support health promotion activities in this community. The project in Lithuania aims to improve access to healthcare services for young people with mental illness through capital investments in a Child Development Centre in the Vilnius University Hospital.

Finally, a significant group of projects within Theme 2 that are focused on improving access to health for the population overall through investments in healthcare infrastructure. For instance, a project in Estonia is focused on improving overall access to health for the general population through the establishment of a primary healthcare centre in the Kadrina municipality and a similar project seeks to improve access to primary health care services for people in a single county in Croatia (Medimurska) through improvements to infrastructure in the region.
Table 3 Exemplary projects for Theme 1 on improving access to healthcare

<table>
<thead>
<tr>
<th>Project title</th>
<th>Member State</th>
<th>Beneficiary(ies)</th>
<th>Budget € Co-finance % Fund Dates</th>
<th>Brief description of project activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Proximity Healthcare Units</td>
<td>Portugal</td>
<td>Algarve Regional Health Authority</td>
<td>EUR 700,000 80% ERDF 2016-2018</td>
<td>The project aims at reducing the asymmetry of the users’ access to the Portuguese National Health Service (groups of healthcare centers) and guaranteeing an adequate healthcare coverage in the rural areas with low population density.</td>
</tr>
<tr>
<td>2. Proximity Labs</td>
<td>Belgium</td>
<td>Cliniques Universitaires Saint-Luc (Public, research hospital); European Medical Association (EU association); Health First Europe (NGO)</td>
<td>EUR 1,736,295 10-50% ERDF 2014-2023</td>
<td>The objective of the project is to demonstrate the viability and use of mobile laboratories for biological analysis, specifically targeted to patients with chronic diseases. These laboratories allow for testing a number of biological parameters critical to the continued treatment of chronic diseases in a more convenient way.</td>
</tr>
<tr>
<td>3. Establishment of primary health centre in Kadrina</td>
<td>Estonia</td>
<td>Kadrina Municipality Government (governmental institution); Kadrina Health Centre Ltd (Kadrina Tervisekeskus OÜ)</td>
<td>EUR 689.867 75% ERDF 2015-2018</td>
<td>The goal of the project is to establish a health centre in Kadrina borough. The health centre is expected to provide high-quality, sustainable and diverse medical services (e.g. primary health care, physiotherapy, home nursing, midwife’s reception, dental services, social counselling and a pharmacy).</td>
</tr>
<tr>
<td>4. Wellbeing kiosk as a strengthener of working and functional capacities</td>
<td>Finland</td>
<td>Jyväskylän Ammattikorkeakoulu Oy (JAMK University of Applied Sciences)</td>
<td>EUR 312.954 75% ESF 2016-2018</td>
<td>The main objective of the project is to develop and pilot a concept for a ‘wellbeing kiosk service’ targeted at the unemployed. The activities of the project are intended to encourage participants towards self-motivated action, healthy lifestyle and the maintenance of work and functional capacities. The welfare services provided by the kiosk include free guidance and advice for the promotion of health and prevention of illness, on a no-appointment basis. The kiosk supports its clients in self-care and, where necessary, directs the clients towards further services.</td>
</tr>
<tr>
<td>5. Increasing the number of services and improving the primary health care in Međimurska county</td>
<td>Croatia</td>
<td>Međimurska županijska- Međimurska county; Dom zdravlja Čakovec Community health care centre Čakovec</td>
<td>EUR 1,014,180 85% ESF 2015-2019</td>
<td>The project aims to improve access to primary health care for disabled persons by purchasing medical equipment for various medical practices (e.g. family medicine, paediatrics, dental care), adapting sanitary rooms and building elevators in the primary health care centre in Cakovec.</td>
</tr>
<tr>
<td>Project title</td>
<td>Member State</td>
<td>Beneficiary(ies)</td>
<td>Budget € Co-finance % Fund Dates</td>
<td>Brief description of project activities</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>------------------------------</td>
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</tr>
<tr>
<td>6. Health of newly arrived immigrants</td>
<td>Sweden</td>
<td>The Swedish Social Insurance Agency, the Swedish Public Employment Service</td>
<td>EUR 274,171 70 % ESF 2015-2016</td>
<td>The project’s objective was to conduct a feasibility study on how health issues among recently arrived immigrants can be identified. Moreover, the study aimed to find methods on how to best identify health problems among this group and ensure that they get the necessary rehabilitation.</td>
</tr>
<tr>
<td>7. Connecting Services</td>
<td>Interreg A UK-Ireland (Ireland - Northern Ireland - Scotland)</td>
<td>Health Service Executive, Republic of Ireland (HSE), Public Health Agency NI (PHA), Health &amp; Social Care Board NI (HSCB), Southern Health &amp; Social Care Trust NI (SHSCT), Western Health &amp; Social Care Trust NI (WHSCT), Northern Ireland Ambulance Service (NIAS), National Ambulance Service ROI (NAS), Scottish Ambulance Service (SAS)</td>
<td>EUR 9,013,058.87 85% ERDF 2017-2021</td>
<td>The project aims to improve the provision of health care in the cross-border region. The aim of the project is to assess and treat significantly higher volumes of patients more effectively by utilising new technologies, new ways of working to improve patient access to acute services and sharing of best practice across borders.</td>
</tr>
<tr>
<td>8. Remote Healthcare Service Provision (RemoteCARE)</td>
<td>Interreg A Greece-Bulgaria</td>
<td>Municipality of Oraiokastro</td>
<td>EUR 1,259,020 ERDF</td>
<td>The project aims at addressing the lack of primary healthcare units in remote rural areas in the cross-border area by providing healthcare services to the targeted population on a regular basis with an emphasis on prevention and early diagnosis. In particular, the project will develop two mobile health care units (one for each country) staffed with a multidisciplinary team (a general doctor, a nurse and a social worker) that will visit the population on a regular basis.</td>
</tr>
<tr>
<td>9. iSolutions to Isolation (i2i)</td>
<td>Interreg B Northern Periphery and Arctic</td>
<td>National Health Service Western Isles</td>
<td>EUR 45,000 65% ERDF 2016</td>
<td>The project’s objective is to create innovative, cost-effective and transferable solutions to tackle social isolation and associated health issues in remote and sparsely populated communities in NPA area. The main target group will be older people.</td>
</tr>
<tr>
<td>10. Renovation of infrastructure of a Child Development Centre of Children's hospital of Vilnius</td>
<td>Lithuania</td>
<td>Vilnius University Hospital Santariskiu Klinikos</td>
<td>EUR 7,500,000 100% ERDF 2017-onwards</td>
<td>Seeking to improve the quality of services and access to services in a child development centre of Vilnius children's hospital, the project will provide better conditions for quality and timely services for children and teenagers. The focus group are those who require mental health care services, nursing parents and tutors.</td>
</tr>
<tr>
<td>Project title</td>
<td>Member State</td>
<td>Beneficiary(ies)</td>
<td>Budget €</td>
<td>Co-finance %</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>--------------------------------------</td>
<td>------------------------------------------</td>
<td>----------</td>
<td>--------------</td>
</tr>
<tr>
<td>University Hospital Santariskiu Klinikos</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Successful social inclusion of Roma-healthy lifestyle</td>
<td>Slovenia</td>
<td>National institute of public health NIJZ</td>
<td>EUR 60,000</td>
<td>80%</td>
</tr>
<tr>
<td>12. Empower kids</td>
<td>Interreg V-A Central Baltic (Finland, Estonia, Latvia, Sweden)</td>
<td>Baltic Region Health Cities Association (FI); University of Turku (FI); Tallinn University Rakvere College (EE); Jurmala Municipality (LV)</td>
<td>EUR 261,460</td>
<td>79%</td>
</tr>
</tbody>
</table>
Conclusions

Investments in improving access to healthcare tend to be concentrated in a small number of countries. Germany, Portugal, Italy, Hungary and Greece each have a large number of projects; however, in terms of budget, Portugal, Hungary, Croatia, and Spain represent much larger investments. Many ESI Funded projects are improving access to healthcare by addressing the different barriers that affect such access (e.g. distance, price, and also social stigma, language and cultural barriers). Of these projects, several are being implemented in geographical areas where distance may create a barrier. For instance, a project in the Algarve region (Portugal) is using mobile health units to provide health services for rural and remote areas. With support from Interreg, similar projects are providing primary healthcare in rural areas, especially at the border (e.g. the Interreg project funded by the Greece-Bulgaria Interreg programme).

However, due the limited information available in project descriptions, it is often difficult to ascertain whether this type of projects is being systematically used to target this issue in with similar needs. One exception to this is the case of Interreg projects, which can often be clearly seen to be targeting geographical barriers in cross-border areas.

A significant number of projects - 232 out of a total of 923 for this theme- are targeting access to healthcare issues for vulnerable populations. These types of projects are often easier to identify, as these populations are usually mentioned in the project descriptions; identified projects focus on low-income populations, the unemployed, people with mental health, people with disabilities and elderly populations at risk of social isolation (e.g. social pharmacies in Greece, projects targeting vulnerable groups in Croatia, the Interreg project EmpowerKids in Finland, Estonia, Latvia and Sweden) . A review of the project descriptions suggests there are relatively few projects targeting Roma populations and immigrants (a few projects were identified in Slovenia and a few Interreg projects in Bulgaria, Greece and Romania).

Among the countries which had some CSRs related to access to healthcare during 2015-2018 we identified ESI funded projects supporting these interventions in all except for Bulgaria, Cyprus, Ireland, Latvia and Romania. However, it may be that in some of these cases, investments have been made in other themes that are intended to indirectly improve access to healthcare. This is likely to be the case in, for example, Bulgaria, where investments have been made in building the health workforce, which will indirectly support access to healthcare services in Bulgaria in the coming years.
Theme 2: Support to reform processes towards effective and resilient health systems

Background and policy context

Effective and resilient health systems underpin Europe’s ability to deliver high quality healthcare to individuals. Population ageing, technological change and growing citizen expectations are placing growing pressure on Member State health budgets. Actions to ensure the long-term fiscal sustainability of healthcare systems will be necessary to secure Member States’ ability to provide access to health services and maintain a healthy workforce. ESI Funds can support these actions through investments that make health systems more efficient while effectively delivering quality health services to individuals.

Well-functioning health systems are critical to meeting the headline targets of the Europe 2020 Strategy, particularly the employment, education and social inclusion targets. The EU has recognised the important role that health systems play in this respect. The 2014 European Commission its Communication on Effective, Accessible and Resilient Health Systems, which noted that ‘modern health systems need to remain accessible and effective while pursuing long-term sustainability’, and set out actions that the Commission and Member States can take to improve the resilience of health systems. In 2015, in its conclusions on the sustainability of public finances in light of ageing populations, the Council of the European Union emphasised the importance of reforming healthcare and long-term care systems to manage the impact of population systems on health systems.

The effectiveness and resilience of Member State health systems are central to achieving health policy goals and common principles of EU Member States. While health systems vary from Member State to Member State, all Member States have recognised certain common values - universality, access to good quality care, equity and solidarity - as key features of European healthcare systems. Delivering healthcare in line with these values requires effective health systems that are financially sustainable and resilient in the long-term.

In addition to being an important value in itself, with effective and resilient health systems representing a key aspect of a well-functioning social welfare system, health is also well recognised as a precondition for economic growth and for achieving Europe’s broader policy goals relating to employment, education and poverty reduction. While not specifically a headline target in the Europe 2020 Strategy, health systems, and public health in general, underpin many targets, enabling social and economic participation thus supporting smart and inclusive growth.

Specifically, health systems are relevant to the following targets set out in the EU 2020 Strategy:

- **The employment target**, aiming for at least 75% of working-age Europeans in employment. Well-functioning health services and systems can support this target by ensuring workers are not prevented from working due to poor health. For instance, well-functioning health systems can prevent workers from exiting the labour market due to poor health and quality care services for elderly citizens and for people with disabilities contribute to increased labour market participation among people, often women, with carer responsibilities.

• The target to lift at least 20 million people out of the risk of poverty and social exclusion. Health systems, and particularly community-based services, can address this target by supporting the economic and social participation of vulnerable groups, including the elderly, people with disabilities, people with mental illness and children deprived of parental care. It is recognised that the social inclusion targets of Europe 2020 ‘cannot be achieved without addressing the situation of over 1.2 million Europeans who spend their lives in residential institutions’.

• The education targets to reduce the rates of early school leaving to below 10% and to ensure at least 40% of 30 to 34-year-olds have completed tertiary education. Health services can support this target by enabling the participation in education among young people with disabilities, young people with mental illness and children deprived of parental care.

Reforming health systems to ensure their efficiency and financial sustainability also contributes to the overarching goal of the European Commission’s Stability and Growth Pact by helping to constrain public spending on health while maximising benefits. Over the coming decades, health care budgets are likely to come under significant pressure in all EU Member States. Ageing populations are associated with increased rates of chronic disease and multi-morbidity, resulting in increased demands on health systems. With the share of the population aged 65 and older projected to increase from 18% (2013) to 28% of the population by 2060, population ageing will place increasing financial strain on health systems. Technological developments leading to more expensive treatments and increasing expectations in terms of standards of care are also expected to place pressure on health budgets.

The EU recognises the need to reform health systems, while at the same time ensuring universal access to high quality healthcare. In 2014 the European Commission published its Communication on Effective, Accessible and Resilient Health Systems, which set out actions to strengthen the effectiveness and improve the resilience of health systems. Key among these actions was improving the integration of care and reducing the reliance on hospital-based care. Similarly, in 2015, the Council of the European Union noted the potential impact of population ageing on health systems in the coming decades and emphasised the importance of reforming healthcare and long-term care systems.

Shifting away from institutionalised to community-based care

To safeguard the above mentioned policy goals, effective and resilient health systems are needed and reforms to existing health systems are necessary in many Member States. Currently, health systems in a number of EU Member States over-emphasise providing care in hospital settings rather than in patients’ homes and communities. This can result in worse health and social outcomes for patients. It also results in unnecessary costs, due to the high cost of hospital care. A hospital-centric care model can also lead to decisions that disproportionately focus on capital investments in infrastructure, potentially at the expense of strategic investments supporting transformational change. Similarly, groups that have ongoing care needs are often treated in long-term residential institutions, when community-based care might be more appropriate. These groups include older people, people with disabilities, people with mental health

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55 European Expert Group, Toolkit on the Transition from Institutional to Community-based Care, 2012, revised 2014
58 Council of the European Union, Council conclusions on the economic crisis and healthcare, (2014/C 217/02), para. 33
59 European Commission, Communication from the Commission on effective, accessible and resilient health systems, COM(2014) 215 final
60 Council of the European Union, Council conclusions on the sustainability of public finances in light of ageing populations, 12 May 2015
61 As noted in recent European Semester Country Reports. See, for example, the 2017 Country Reports for Austria, the Czech Republic, Romania, among others.
problems and children deprived of parental care. For these groups, long-term stays in institutions impacts their ability to maintain family and social connections, and often precludes their participation in education and employment. It is estimated more than one million children and adults with disabilities live in institutions in Europe.

Deinstitutionalisation - the process of shifting services from long-term residential institutions to high quality services in the community - can improve the outcomes for these people. However, the process of deinstitutionalisation requires significant transformations in how health and social services are planned, resourced and delivered. There is a risk that deinstitutionalisation can replicate the harmful aspects of institutional care or can leave people without the services they require. Therefore, Member State authorities responsible for delivering health and social services often require additional financial resources and technical support to make this transition. Deinstitutionalisation is well established as a policy objective of EU health and social system reform policies. The European Disability Strategy 2010-2020 set out a framework for providing quality services in users’ communities rather than in institutions, and notes the potential to use Structural Funds for actions that support the transition from institutional care.

Strengthening primary and integrated care
In addition to shifting care from hospital and institutional settings, there are a number of other measures that can be used to build the effectiveness and resilience of healthcare systems, by reducing the overall costs of care while at the same time ensuring high quality patient care. Strengthening primary care in the overall healthcare system can help reduce over-reliance on hospital treatment and promote preventative health. In addition, improving the integration of primary, secondary and hospital care can help to ensure patients receive high level of care; such integration can support patients in accessing treatment at an earlier stage, helping to ensure better health outcomes while avoiding higher cost treatments such as specialist and/or hospital-based treatment.

Improving health infrastructure
Finally, investments in health infrastructure are needed to improve the efficiency and sustainability of facilities, and of health systems more broadly. In some Member States, infrastructure investments are needed to upgrade existing facilities, address new demographic challenges, or to address past gaps in investments. These infrastructure investments can be used to foster transformational change in health systems, particularly in supporting the shift from hospital- and institutional-based care to community based care and the better integration of services.

Structural reforms at the Member State level: the EU semester process

The European Semester process aims to support Member States in achieving the structural reforms necessary to achieve the goals of the Europe 2020 strategy. While not a headline target of the Europe 2020 Strategy, health system reform has featured as a key structural reform for many Member States during the European Semester process. This is due to the critical role health systems play in securing social inclusion and maintaining the European labour market, and the need to ensure the financial sustainability of public expenditure on health and social services.

The Annual Growth Survey (AGS) kicking off the European Semester process sets out the general economic priorities for the year. It focuses on boosting investment, pursuing structural reforms, and promoting responsible fiscal policies. In 2017, the AGS noted the need to maintain access to quality healthcare and

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\[63\] Mansell, J., Knapp, M., Beadle-Brown, J., and Beecham, J., Deinstitutionalisation and community living - outcomes and costs: report of a European Study, Volume 2: Main Report, University of Kent, 2007


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long-term care services as a means of avoiding ‘health-related exits from the labour market’ and supporting labour market participation, particularly for women, who frequently face care obligations for family members. The Survey noted the need to safeguard sustainable health systems noting that ‘further policy action will be needed enabling the individual to stay healthy for longer, while making health systems more effective, accessible and resilient’\textsuperscript{65}. The 2018 Annual Growth Survey notes a continued need to reform health and long-term care systems, observing that action is needed to enable ‘people to stay healthy for longer, by making health systems and long-term care more cost-effective and ensuring timely access to affordable preventive and curative healthcare of good quality’\textsuperscript{66}.

While all Member States will face challenges in ensure the long-term sustainability of health systems in the coming years, particular needs have been identified in some Member States through the Country Specific Recommendations (CSRs) made during the European Semester process. In recent years (2015-2018) a number of issues relating to health system reform have been identified through this process:

- Ensuring the financial sustainability of healthcare services in the context of increasing expenditure was identified as an issue in seven Member States (AT; CZ; ES; FI; MT; PT; and UK). Similarly, potential inefficiencies in the healthcare sector threatening the sustainability of the healthcare system were identified in five Member States (CY; FR; PL; SK; and SL) The need to improve or ensure the efficiency and/or cost-effectiveness of healthcare spending was recommended in 2017 for five countries (FI; LV; PT; SI; and SK). In one of these countries, Finland, it was noted that major reforms are underway that are expected to improve efficiency in the sector.
- Low levels of overall public funding for health care were noted in five Member States (BG; HU; LT; LV; and RO).
- Issues in the systems for delivering long-term care were identified in five Member States (HR; MT; PL; RO; and SI). Reforms to long-term care were recommended in the CSRs for Slovenia.
- An over-reliance on hospital-based service delivery and/or incentives that induce over-use of hospital care were noted in eight countries (AT; BG; CY; CZ; IE; LT; RO; and SK). Reforms specific to the hospital sector were identified in CY; The CSRs for two countries (LT and RO) recommended the strengthening of outpatient care to reduce the over-reliance on hospital care.
- A need to improve the provision of primary care and the integration of services (primary, secondary and hospital care and/or social services) was noted in nine countries (CZ; EE; LV; PL; PT; RO; SI; SK; and UK). In France, it was noted that recent improvements in care integration had been made.

In 2017, the CSRs for ten Member States - AT, BG, CY, FI, LT, LV, PT, RO, SI, SK - included recommendations relevant to health and/or long-term care policy. For nine of these countries, the recommendations had some relevance to health system reform, as detailed in the table below\textsuperscript{67}.

Table 4 CSRs related to health system reform in 2017 European Semester process

<table>
<thead>
<tr>
<th>Member State</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving efficiency and ensuring the financial sustainability of healthcare systems</td>
<td></td>
</tr>
<tr>
<td>Austria</td>
<td>Ensure the sustainability of the healthcare system and of the pension system. (CSR1)</td>
</tr>
<tr>
<td>Finland</td>
<td>Ensure timely adoption and implementation of the administrative reform to improve cost-effectiveness of social and healthcare services. (CSR1)</td>
</tr>
<tr>
<td>Latvia</td>
<td>Increase cost-effectiveness and access to healthcare, including by reducing out of pocket</td>
</tr>
</tbody>
</table>

\textsuperscript{65} European Commission, Annual Growth Survey 2017, COM(2016) 725 final

\textsuperscript{66} European Commission, Annual Growth Survey 2018, COM(2017) 690 final, p.11

\textsuperscript{67} Note, while only one recommendation on health and long-term care policy was made for Slovenia, it addressed two separate issues relevant to health system reform (the healthcare system and the long-term care system) which have been treated separately in the table.
<table>
<thead>
<tr>
<th>Member State</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portugal</td>
<td>Strengthen expenditure control, cost effectiveness and adequate budgeting, in particular in the health sector with a focus on the reduction of arrears in hospitals and ensure the sustainability of the pension system. (CSR1)</td>
</tr>
<tr>
<td>Slovenia</td>
<td>Adopt and implement the proposed reform of the healthcare system... increasing cost-effectiveness, accessibility and quality care. (CSR1)</td>
</tr>
<tr>
<td>Slovakia</td>
<td>Improve the cost effectiveness of the healthcare system, including by implementing the value for money project. (CSR1)</td>
</tr>
</tbody>
</table>

Reform long-term care

<table>
<thead>
<tr>
<th>Member State</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slovenia</td>
<td>... [A]dopt the planned reform of long-term care, increasing cost-effectiveness, accessibility and quality care. (CSR1)</td>
</tr>
</tbody>
</table>

Reform hospital care and/or strengthen outpatient care

<table>
<thead>
<tr>
<th>Member State</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyprus</td>
<td>By end-2017, adopt legislation for a hospital reform and universal health care coverage. (CSR5)</td>
</tr>
<tr>
<td>Lithuania</td>
<td>Improve the performance of the healthcare system by strengthening outpatient care, disease prevention and affordability. (CSR2)</td>
</tr>
<tr>
<td>Romania</td>
<td>In healthcare, shift to outpatient care, and curb informal payments. (CSR2)</td>
</tr>
</tbody>
</table>

In the 2017 European Semester process, the European Commission noted that in recent years there has been slower progress in implementing structural reforms in certain policy areas, including health and long-term care. The Commission observed that these reform priorities will become more pressing due to population ageing. This suggests a growing need to ensure that investments under the Structural Funds support these priorities. During 2015-2018, the following countries had CSRs related to their health systems include Austria, Bulgaria, Cyprus, Czech Republic, Greece (Enhanced Surveillance Report), Spain, Finland, France, Croatia, Ireland, Italy, Latvia, Lithuania, Malta, Portugal, Romania, Slovenia and Slovakia.

Spending priorities for ESI Funds and programming results 2014-2020

Pre-programming guidance: the health thematic fiche
The European Union has long stressed the role of structural funds in supporting health system reform. It has been noted that, in previous funding periods, ESI Fund investments have focused on health care infrastructure, and potentially missing opportunities for investments that would trigger or support long-term system-wide reforms. In 2011, the Council urged Member States to ‘make smarter use of EU financial programmes, including inter alia Structural Funds, which can contribute to health system innovation and to reducing health inequalities, and can trigger further economic growth.’ The European Commission’s 2013 Staff Working Document on Investing in Health sets out the case for using investments under the ESF for investments in ‘sustainable, innovative and reformed health systems’ and recommends using structural funds to invest in infrastructure that supports transformation change in the health system, particularly in reinforcing the shift to community-based care and integrated services. The relevant ex ante conditionality in the Common Provisions Regulation for the ESI Funds also seeks to encourage a more strategic use of Structural Funds to support health system reform where necessary. The Health ex ante conditionality requires the ‘existence of a national or regional strategic policy framework for health... ensuring economic stability’. This framework should contain ‘measures to stimulate efficiency in the health sector’.

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70 Council of the European Union, Council Conclusions: Towards modern, responsive and sustainable health systems, 2011/C 202/04
71 Regulation (EU) No 1303/2013
Since 2009, when it was established by the European Commissioner for Employment and Social Affairs, the European Expert Group on the Transition from Institutional to Community-based Care (previously the Ad Hoc Expert Group on the Transition from Institutional to Community-based Care) has been examining how to support the transition to community-based care in the EU. The Toolkit on the Use of European Union Funds for the Transition from Institutional to Community-based Care specifically addresses how EU funds, and particularly the Structural Funds, can be used to support deinstitutionalisation.

With the goal of promoting investments that support structural reforms in the health sector, in 2014 the European Commission published guidance on health investments under the ESI Funds for the 2014-2020 period. This guidance outlines spending priorities - the Thematic Objectives - in the ESI Funds that could support investments in health sector reform and identifies specific types of investment that could be made under these priorities, presented in the box below.

**Box 2 Spending priorities to support health system reform**

<table>
<thead>
<tr>
<th>Spending priorities to support health system reform</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Thematic Objective 9: Promoting social inclusion and combating poverty</strong></td>
</tr>
<tr>
<td>- Cost-effectiveness and sustainability of care</td>
</tr>
<tr>
<td>- Establish effective information systems to assess the performance of health systems and compare their outcomes against proper benchmarks; establish public reporting on performance data.</td>
</tr>
<tr>
<td>- Improve appraisal of services, protocols, investments and procurement by means of:</td>
</tr>
<tr>
<td>▪ Measuring and monitoring effectiveness of health investments by using Health Technology Assessment (HTA);</td>
</tr>
<tr>
<td>▪ Publication of clinical guidelines/protocols, and setting up an auditing system for their implementation;</td>
</tr>
<tr>
<td>▪ Establishment of national procurement system for medicines vaccines and antiviral medication, medical devices, and a centralised purchasing authority;</td>
</tr>
<tr>
<td>▪ Use of prescription guidelines (based on international guidelines), increased use of generics;</td>
</tr>
<tr>
<td>▪ Pricing regulation for medicines (after patent expires) using internal reference pricing.</td>
</tr>
<tr>
<td>- Transition from hospital-based care to community-based care</td>
</tr>
<tr>
<td>- Promote innovative integration of care, based on improved communication and coordination, across the levels of health care (primary, specialist, hospital) and across health, social and community/home-care systems.</td>
</tr>
<tr>
<td>- Promote community-based mental, rehabilitation and long-term care (de-institutionalization).</td>
</tr>
<tr>
<td>- Strengthen ambulatory services and primary care, while increasing care coordination, to reduce unnecessary visits to specialists/hospitals, including via prevention and monitoring including telemedicine and telecare solutions.</td>
</tr>
<tr>
<td>- Increase coverage of family doctors / general practitioners in all areas and strengthen the multidisciplinary professional cooperation.</td>
</tr>
<tr>
<td>- Reduce duplication of hospital services, where there is already a good territorial coverage of hospitals, via specialisation and concentration of hospitals, therefore allowing to reduce capacity, and via joint management and operation of hospitals.</td>
</tr>
<tr>
<td>- Create a more patient-centred care by improving access to information, fostering health literacy, providing personalised care solutions for chronic and long-term care needs, and identifying high-risk patients through stratifying the population and implementing care pathways.</td>
</tr>
<tr>
<td>- Infrastructure</td>
</tr>
<tr>
<td>- Infrastructure investments are eligible from ERDF under Thematic Objective 9 in accordance with the Regulation.</td>
</tr>
</tbody>
</table>

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72 European Expert Group, *Toolkit on the Transition from Institutional to Community-based Care*, 2012, revised 2014
Spending priorities to support health system reform

- Infrastructure investments should be justified on the basis of territorial development needs (national, regional or local) and/or disadvantaged groups and marginalised communities and should notably take account of:
  - availability and accessibility of all services, thus reducing inequalities in terms of health status;
  - concentration of specialized services;
  - conversion of infrastructure for prioritised purposes within a strategy for cost-effective and sustainable health systems.

- Mental health
  - Promote community-based, socially inclusive treatment and care models (deinstitutionalisation) and improve access to care for people suffering from mental disorders.

Thematic Objective 11: Enhancing institutional capacity and ensuring an efficient public administration

- Under this goal, interventions to be financed in the area of health should contribute to Member States’ actions towards EU policy goals to enhance cross-border cooperation and in support of institutional and management capacities of health administration and stakeholders, including in particular to design and implement the necessary reforms (which are recommended under TO 9) to increase health systems’ cost-efficiency, quality and sustainability, and to reinforce health systems.

Programming: the selection of investment priorities/intervention fields and definition of specific objectives and indicators

A number of investment priorities set out in the fund-specific regulations are relevant to health system reform. These investment priorities are primarily found under Thematic Objective 9: ‘Promoting social inclusion, combating poverty and any discrimination’ and Thematic Objective 11: ‘Enhancing institutional capacity of public authorities and stakeholders and efficient public administration’. The investment priorities that were selected most frequently in relation to health system reform were:

- ERDF 9a: Investing in health and social infrastructure which contributes to national, regional and local development, reducing inequalities in terms of health status, promoting social inclusion through improved access to social, cultural and recreational services and the transition from institutional to community-based services. This Investment Priority was identified in 12 Member State Ops and six Interreg A Ops;
- ESF 9iv: Enhancing access to affordable, sustainable and high-quality services, including health care and social services of general interest (11 Member State Ops);
- ESF 9i: Active inclusion, including with a view to promoting equal opportunities and active participation, and improving employability (four Member State Ops);
- ESF 11i: Investment in institutional capacity and in the efficiency of public administrations and public services at the national, regional and local levels with a view to reforms, better regulation and good governance (three Member State OPs);
- ERDF 1a: Promoting business investment in R&I (three Interreg A OPs); and
- ETC aiv: Enhancing institutional capacity of public authorities and stakeholders and efficient public administration by promoting legal and administrative cooperation and cooperation between citizens and institutions (six Interreg A OPs).

In total 14 Member States\(^\text{74}\) planned Investment Priorities that could be relevant for health system reform in their OPs. A full list of the relevant Investment Priorities for this theme and the Member States that selected them in the OPs can be found in Annex 1.2. Notably, no projects relevant to the theme of health

\(^{74}\text{BG, CZ, EE, EL, ES, FI, HR, IT, LT, LV, MT, PL, PT, RO, SI, SK}\)
system reform were identified in Austria and Cyprus, despite country-specific recommendations for health system reform being made for both countries in recent years. In Cyprus, only one health project, relating to the theme of healthy workforces, has been identified. In Austria, the 20 projects that have been identified have been in the areas of healthy workforce and health promotion. Some of these may support deinstitutionalisation, due to their focus on people with mental illness; however, none specifically target the issues over-reliance on hospital-based care identified during the European Semester process for Austria. (This is not to suggest that Austria has not acted to address its Country Specific Recommendations; rather, that it is not currently using Structural Funds to do so.)

The Member States that selected Investment Priorities relevant to health system reform took varied approaches in defining the specific objectives in their OPs. Deinstitutionalisation and the transition to community-based care was a frequent theme of the specific objectives, with nine Member States making some link to this theme. In some cases, the objective was quite general (for example, in Slovakia, the objective is stated as ‘Transition from institutional to community-based care’) or combined with other health policy objectives (for example, in the Czech Republic, the objective combines access to health objectives with health system reform objectives: ‘Increasing availability and efficiency of health care services and shifting psychiatric care to the community level’). In Croatia, deinstitutionalisation goals are linked to specifically to the social inclusion Thematic Objective, and the Europe 2020 social inclusion target (‘To promote social inclusion and reducing inequalities by transition from institutional to community-based services through improved social infrastructure’). In Slovenia, a specific objective outlines an action - ‘Pilot testing of approaches for improved integration of long-term care services’ - directly targeting the recommendations for reforming long-term care systems outlined during the European Semester.

Going beyond deinstitutionalisation, some specific objectives seem to address goals relating to more efficient and sustainable health systems (for example, the Czech Republic, Estonia), albeit in a rather general manner. Infrastructure spending was identified in some specific objectives, but tend to be linked to broader health policy objectives. For example, Spain’s specific objectives mentioned ‘Investment in social and health infrastructure that contributes to national, regional and local development, and reduces health inequalities and transition from institutional services to local services.’ Often infrastructure investments were mentioned in the context of improving access to health services (for example, in Greece and Portugal).

The common result indicators for ESF programmes emphasise increasing participation in employment and education, thus the indicators do not directly relate to the theme of hospital system reform (although there are indirect links). For ERDF programmes, the health indicator focused on the population covered by improved health services is indirectly relevant to the theme of health system reform - investments in health infrastructure, better integrating health services and reinforcing primary care sector are likely to contribute to greater access to improved health services. However, this does not assist in assessing the impacts of investments on health system reform. The common output indicator for health is relevant for this theme and has been used for the theme 2 by 5 Member States (EL, ES, MT, PL, PT).

Member States defined several programme-specific indicators within individual OPs to monitor the performance of the health reform-related projects. These indicators typically refer to the number of persons benefitting from certain programmes or number of institutions undergoing reforms. Some indicators (e.g. in Poland) refer also to improved efficiency of the health care services. A number of Member States include indicators on the number of people within specific target populations supported in transitioning from institutional to community-based care, or avoiding institutional care (for example,

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75 BG, CZ, ES, HR, LT, LV, PT, SI, SK
Bulgaria, Croatia, Lithuania, Latvia). Examples of programme-specific indicators used for this theme by Member States are:

- Participants with disabilities and participants over 65, unable to take care of themselves, with improved access to services (BG).
- Number of modernized primary health centres (EE).
- Share of inhabitants of disadvantaged urban areas covered by the newly created health infrastructure (FR).
- Reduction of number of people in health care institutions (HR).
- Percentage of elderly population (65 years old and beyond) who receive assistance at home (IT).
- Average time of bed occupancy in health unit (PL).

Very few Interreg Programmes include monitoring indicators with relevance to health. The following examples have been found with relation to the Theme 2:

- Number of people who used a health service on either side of the border; Number of tools/instrument to access health and social services on both sides of the border (FR-BE).
- Number of projects to improve cross-border cooperation in the field of health (BE-DE-NL).
- Number of health care institutions reorganized, modernized or reequipped (EL-BG).

A review of Member State programming documents suggests Member States are using ESI Funds to support investments in health systems reform, particularly in the area of deinstitutionalisation. The emphasis on deinstitutionalisation potentially reflects both the needs for action in this area within some Member States, and the importance of deinstitutionalisation in achieving social inclusion in line with the Europe 2020 targets and Thematic Objective 9.

Projects supporting health system reform 2014-2020

Annex 1.2 contains the results of the mapping of Member States spending on projects classified as supporting health system reform. For a comprehensive picture of what has been funded in this area to support the health system reform, it is necessary to look both at the numbers of projects and also the total expenditure. Across the six health-related themes covered by the research, a significant number of projects supported health system reform – 1,738, or around 23% of the total number of projects (7,404). In terms of investment, the total budget of these projects is around EUR 1.6 billion\(^76\) or around 20% of all health projects identified.

Investments in health system reform were found in 16 Member States, with a particular concentration of projects in Poland (486 projects), Spain (303 projects) and Bulgaria (333 projects). The significant number of projects in Poland relating to health system reform is due, at least in part, to a large number of similar individual projects focused on the same action and theme implemented in different regions (voivodships). Each of these municipal projects are listed by the Polish authorities as a separate project in the lists of operations. Around 450 individual projects fall into this category. Of these projects, 366 include some support for deinstitutionalisation measures; 172 include objectives related to strengthening primary care and supporting the transition away from hospital care; 95 relate to investments in healthcare facilities\(^77\). Of the 333 projects relevant to health system reform in Bulgaria, 319 aim to contribute to deinstitutionalisation. This is in line with the specific objectives identified by Bulgaria in its relevant OPs focused on reducing the number of elderly people, people with disabilities, children and youth in institutional care. In addition to Poland, Spain and Bulgaria, a significant number of projects on health system reform can also be found in Lithuania, Greece, Czech Republic, Estonia and Portugal.

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\(^76\) For around 8% of the theme 2 projects budget information was not available.

\(^77\) These projects often contributed to more than one sub-theme within the theme of health system reform.
When looking at the programming of projects for health system reform in terms of funding rather than number of projects, the picture changes somewhat. Poland continues to represent the bulk of investment on health system reform within the structural funds, having allocated approximately EUR 530 million for health system reform. After this, Spain has allocated 238 million, and with only 86 projects, the Czech Republic has allocated almost EUR 188 million. The Czech projects have an average budget of more than EUR 2 million, and 68 of the 86 projects are investments in the acquisition, expansion and/or modernisation of healthcare facilities. One further project of almost EUR 4 million is focused on creating five mental health centres to establish a community-based mental health system that is currently lacking in the country. Similarly, while Slovakia only has two projects relating to health system reform, each of these two projects have relatively high budgets (almost EUR 18 million and EUR 50 million). These projects are programmes focused on recruiting carers and social services staff to support people in home environments who may otherwise be in institutional care.

In terms of average project size, the largest projects are found in Slovakia (around EUR 34 million), France (around EUR 8 million) and Latvia (around EUR 7 million). However, these three countries have a small number of fairly large projects. The average project sizes in the countries with the most projects are approximately EUR 1.2 million (Poland), EUR 0.4 million (Bulgaria) and EUR 0.8 million (Spain).
The projects identified as relevant to the theme of health system reform were further classified according to twelve sub-themes. A breakdown of projects by sub-theme is provided in the table below. It should be noted that one project can be classified as relevant to more than one sub-theme.

Table 5 Main sub-themes and sub-themes for theme 2 on health systems reform

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Number of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2.1</td>
<td>Deinstitutionalisation measures</td>
<td>1021</td>
</tr>
<tr>
<td>T2.1</td>
<td>Measures focusing on people with disabilities</td>
<td></td>
</tr>
<tr>
<td>T2.2</td>
<td>Measures focusing on people with mental health problems</td>
<td>145</td>
</tr>
<tr>
<td>T2.3</td>
<td>Measures focusing on elderly</td>
<td>773</td>
</tr>
<tr>
<td>T2.4</td>
<td>Measures focusing on children (deprived of parental care)</td>
<td>54</td>
</tr>
<tr>
<td>T2.5</td>
<td>Other</td>
<td>14</td>
</tr>
<tr>
<td>T2.6</td>
<td>Transition from hospital to community-based care</td>
<td>232</td>
</tr>
<tr>
<td>T2.7</td>
<td>Integration of care/integrated care</td>
<td></td>
</tr>
<tr>
<td>T2.8</td>
<td>Improving capacities and structures for community-based care</td>
<td>478</td>
</tr>
<tr>
<td>T2.9</td>
<td>Other</td>
<td>2</td>
</tr>
<tr>
<td>T2.10</td>
<td>Investments in healthcare facilities’ efficiency and sustainability</td>
<td>348</td>
</tr>
<tr>
<td>T2.11</td>
<td>Hospital-related</td>
<td></td>
</tr>
<tr>
<td>T2.12</td>
<td>Other</td>
<td>7</td>
</tr>
<tr>
<td>T2.10</td>
<td>Other healthcare infrastructure (not hospital-related)</td>
<td>316</td>
</tr>
<tr>
<td>T2.11</td>
<td>Human resources</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: One project may address more than one sub-theme, and therefore be counted twice in the table above.

Within the projects on this theme, there is a notable emphasis on deinstitutionalisation, with a total of 1021 projects contributing to some extent to this theme, and within that, on measures for people with disabilities and elderly people. Many of these projects had a broad focus on people at risk of social exclusion, including the elderly and people with disabilities, accounting in part for the large number of subjects in this area. Moreover, the emphasis on deinstitutionalisation measures for elderly people is most...
likely appropriate, given the issue of population ageing across Member States, and the challenge this creates for fiscal sustainability in the health sector, which has been noted as a key issue during the European Semester process in recent years. In contrast, projects supporting deinstitutionalisation of children deprived of parental care represented just 53 projects. While further investigation would be needed to ascertain why this is the case, with most (49) of these investments occurring in Bulgaria, this may simply reflect the ongoing efforts to scaling down the institutional care of children in that country. The Bulgarian investments include one very large project of EUR 26 million which continues to support the development of the Bulgarian foster care system, following on from a previous project. The project develops ‘specialised foster care’ support for children with additional needs (for example, children with disabilities, unaccompanied refugees).

Reforms to hospital systems, improving primary care and the integration of care were a relatively common theme of the Country Specific Recommendations. While the projects in the health system reform theme have a strong emphasis on deinstitutionalisation, there are also around 712 projects focused on supporting the transition from hospital to community-based care (as distinct from the transition from institutional long-term care to community-based care). A large number of these projects are focused on providing integrated health services in local health centres. For example, more than 90 projects in Lithuania focus on providing nursing and other services at home. New community family health centres are supported in Estonia, to provide integrated health services (primary care, midwifery services, physiotherapy, etc.). Similar centres are supported in Bulgaria.

Investments in infrastructure are frequently seen under this theme. Many of these investments represent modernisation of premises or purchases of new equipment. Many infrastructure investments support health system reforms and/or broader health policy goals, for example, in Portugal, EUR 1 million is invested in mobile health units, with the goal of improving access to health. In Estonia, EUR 5 million is invested in a project to replace an ageing polyclinic with a modern primary health centre with greater physical capacity to support integrated health care services.

The need to improve health systems, including in terms of their sustainability, efficiency and accessibility is an important issue that has been address within the European Semester. Countries with CSRs related to health systems (sustainability, expenses, etc.) include Austria, Bulgaria, Cyprus, Czech Republic, Greece (Enhanced Surveillance Report), Spain, Finland, France, Croatia, Ireland, Italy, Latvia, Lithuania, Malta, Portugal, Romania, Slovenia and Slovakia. Projects addressing the reform of health systems were identified in Bulgaria, Czech Republic, Greece, Spain, Finland, France, Italy, Latvia, Lithuania, Malta, Portugal, Romania, Slovenia and Slovakia.

**Exemplary projects**

Within the projects focused on health system reform co-financed by ESI Funds, there are a number of lessons and good practices that could potentially be shared with other stakeholders in other Member States to help support the effective use of investments for health system reform measures. Good practices relate to the interesting or innovative nature of project, and the potential for replication in other EU countries or regions. Strong links with broader (national or EU) policy objectives is also a criterion in identifying good practice projects, with projects that overcome frequently encountered challenges in achieving policy goals being particularly strong candidates as good practice projects. An overview of eleven projects providing examples of good practices, including 10 Member State projects and one Interreg project, selected for the theme of health system reform is provided in the table below.

Among the 11 good practice projects, there is a strong emphasis on projects that support deinstitutionalisation, with nine projects having some link to this sub-category. This is somewhat in line with the overall investments under the health system reform theme, which tend to have a stronger focus
on deinstitutionalisation and reforming long-term care systems, with less emphasis on hospital-system reform.

Within the system of health system reform, good practice projects include those that go beyond investments in new or upgraded infrastructure to support broader health system reforms or other policy objectives. The use of investments in infrastructure to support health system reform goals is seen, for example, in the EUR 3.7 million Mental Health Centres project in the Czech Republic. This project is establishing seven centres that will provide integrated, community-based care to people who would otherwise potentially be institutionalised. While this is an investment in new infrastructure, it is also a critical investment in establishing a community-based mental healthcare model in the Czech Republic, where mental healthcare has previously been centred on institution-based care. Similarly, while not an investment in infrastructure, the development of a social services system carried out by the Latvian Ministry of Welfare aims to develop and test a country-wide model for delivering health and social services for people with disabilities and mental illness outside of institutional settings.

While the Czech and Latvian projects represent a rather significant investment that aims to transform the health system country-wide, smaller projects similarly support the transformation of healthcare delivery, albeit on a more local scale. For example, in Finland, the PoPSTer project is an investment of EUR 1 million focused on supporting nation-wide reforms to health and social services within one region (Northern Ostrobothnia). Under the national-level reforms, responsibility for municipality health and social services will be transferred to new regional authorities from 2020. These reforms are expected to improve efficiency in healthcare delivery, as well as provide patients with more integrated care and choice in service providers. This project will support the region of Northern Ostrobothnia in developing its own model for delivering health and social services under the reformed system. In addition to supporting health system reform, the investment (and the national reforms, more broadly) are linked to other health policy objectives, including deinstitutionalisation, access to health in remote areas, and addressing health inequalities.

With all EU Member States facing the need to meet growing demand for health and social services for elderly people, many of these projects are specifically focused on developing new service provision models for aged care outside of institutional settings. For example, the Slovakian Support of Caretaker Services project is a very large investment (EUR 50 million) that represents a shift away from residential care for the elderly in Slovakia. Under the project, more than 3300 nursing staff positions have been created to support the care of elderly people and people with disabilities in their homes, with the goal of avoiding institutional care. Investigations of the project found that the project team also intends to carry out a feasibility study into developing a long-term funding model for the programme to ensure that it can be sustained outside of ESI Fund investments and become a core part of the healthcare system.

Finally, other good practice projects trialled novel approaches to meeting the growing demand for health and social services from the aged population at a smaller scale. A prominent example of this is the Italian Generational Clashes project, which, with a very small budget (EUR 20,000), sought to address both youth unemployment and aged care issues. The project matched young volunteers at risk of long-term employment with elderly citizens at risk of social exclusion to develop personalised health and social care plans, under the supervision of healthcare services in Trieste. With a somewhat larger budget (EUR 700,000), the Interreg STAR project addressed the challenges in planning healthcare services for elderly people in a cross-border context, while at the same time avoiding institutional care. The project aims to coordinate across the Croatia-Slovenia border the establishment of different forms of care services (a day care and a household group within a retirement home) for elderly citizens, as well as training for family caretakers to support elderly people remaining in their homes for longer.
Table 6 Exemplary projects for Theme 2 on health system reform

<table>
<thead>
<tr>
<th>Project title</th>
<th>Member State</th>
<th>Beneficiary(ies)</th>
<th>Budget €</th>
<th>Co-finance %</th>
<th>Fund Dates</th>
<th>Brief description of project activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Star Project (INTERREG)</td>
<td>Croatia - Slovenia</td>
<td>Municipality of Hrpelje-Kozina, Slovenia (lead)</td>
<td>0.7 million</td>
<td>85% ERDF</td>
<td>2016-2018</td>
<td>The project focuses on reforming care for elderly people in a cross-border region of Croatia and Slovenia. It aims to provide alternatives to long-term institutional care and to enable elderly patients to remain in their homes. These alternatives include a household group in a retirement home (Kantrida, Croatia) and a day centre (Hrpelje-Kozina, Slovenia). It also provides training and support to family carers of elderly people.</td>
</tr>
<tr>
<td>2. Mental health centres</td>
<td>Czech Republic</td>
<td>Ministry of Health</td>
<td>3.7 million</td>
<td>77.56% ESF</td>
<td>2017-2020</td>
<td>Establishment of five Mental Health Centres to provide multidisciplinary, community-based care to people with mental illness who would otherwise be at risk of institutionalisation.</td>
</tr>
<tr>
<td>3. Physical adaptation of disabled people’s homes</td>
<td>Estonia</td>
<td>Astangu Vocational Rehabilitation Centre, local municipalities</td>
<td>1.7 million</td>
<td>85% ERDF</td>
<td>2015-2023</td>
<td>This project makes adaptations to the homes of people with disabilities to improve their independence and reduce the burden on carers. Training is provided to municipality staff to enable them to carry out adaptations.</td>
</tr>
<tr>
<td>4. Social welfare and health care in Northern Ostrobothnia as part of the province’s future (PoPSTer)</td>
<td>Finland</td>
<td>Council of Oulu Region, Northern Ostrobothnia Hospital District</td>
<td>1 million</td>
<td>100% ERDF</td>
<td>2016-2017</td>
<td>Project supports major health system reforms to commence in Finland in 2019, whereby responsibility for municipality health and social services will be transferred to new county authorities. The project supports the preparatory works for the reforms in the region of Northern Ostrobothnia. Ultimately, it is intended that the reforms will deliver better integration of services and cost savings.</td>
</tr>
<tr>
<td>5. Generational clashes - When the encounter between young and old creates health</td>
<td>Italy</td>
<td>Integrated public healthcare services company of Trieste</td>
<td>0.02 million</td>
<td>100% YEI</td>
<td>2015-2016</td>
<td>This project matched young volunteers at risk of long-term unemployment with elderly citizens at risk of isolation under the supervision of health care services in Trieste. The volunteers worked with the elderly citizens to develop personalised care plans. In implementing the plans, the volunteers worked with all relevant services providers (nurses, GPs, psychologists, physiotherapists).</td>
</tr>
<tr>
<td>6. Integral care at home</td>
<td>Lithuania</td>
<td>Pt Raseinion Social Services Centre</td>
<td>.6 million</td>
<td>100% ESF</td>
<td>2016-2020</td>
<td>The project provides integrated care to elderly people, adults and children with disabilities in their homes. The services provided include social services (housework, collecting groceries) and nursing care. The project also carries out training and capacity building activities with a public social services centre and work with family carers to build their skills.</td>
</tr>
<tr>
<td>7. Development of a social services support system</td>
<td>Latvia</td>
<td>Ministry of Welfare</td>
<td>4.7 million</td>
<td>85% ESF</td>
<td>2016-2021</td>
<td>The project has two aspects. First, it will look developing and testing mechanisms for funding community-based social services (i.e. the provision of a support person to targets). Second, it will develop and test the implementation of social services through pilot projects. The two target groups are people with serious mental illness and children with functional impairments.</td>
</tr>
<tr>
<td>8. Daily healthcare facility (Wodzisław Śląski)</td>
<td>Poland</td>
<td>Silesian Medical Centre Ltd</td>
<td>.2 million</td>
<td>84% ESF</td>
<td>2016-2018</td>
<td>The project provides free integrated care services provided over a number of days (between 30 and 120 days) at a day treatment clinic. The project targets those who were recently hospitalised and those with specific health conditions.</td>
</tr>
<tr>
<td>Project title</td>
<td>Member State</td>
<td>Beneficiary(ies)</td>
<td>Budget € Co-finance % Fund Dates</td>
<td>Brief description of project activities</td>
<td></td>
<td></td>
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<tr>
<td>9. A friendly place in the local community (Inowrocław and Mogilno)</td>
<td>Poland</td>
<td>Medical Centre SIR MED, Ltd</td>
<td>.37 million 85% ESF 2016-2018</td>
<td>The project provides integrated care service in a day treatment facility targeting the elderly, people with disabilities and people at risk of poverty and social exclusion. Mentors are trained to support the integration of patients into the community at project completion.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Deinstitutionalisation - A chance for a good change</td>
<td>Poland</td>
<td>Foundation Leonardo (Lead)</td>
<td>.025 million 100% ESF 2016</td>
<td>The project aims to support the provision of integrated support services to people experiencing mental health crises by developing a model for a mental health care centre that could be implemented in a second stage of the project. The project is intended to support the transition from institutional treatment for people with mental illness.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Support of caretaker services</td>
<td>Slovakia</td>
<td>Implementation Agency of the Ministry of Labour, Social Affairs and Family of the Slovak Republic</td>
<td>49.9 million 50-85%, depending on the region ESF 2015-2018</td>
<td>The project supports the development of community nursing services to support shift away from residential care across Slovakia and prevent the institutionalisation of elderly citizens and people with disabilities. The project is also developing a funding model to support the delivery of community nursing services beyond the completion of the project.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Conclusions

Within the theme of health system reform, there is a clear emphasis on deinstitutionalisation goals, with a large number of investments focused on this aspect. This may potentially explain the concentration of these projects in some countries, including Poland and Bulgaria, where governments are seeking to shift service provision away from institutional settings. Investments that focused on healthcare services for groups at risk of institutional care often had a very clear objective of avoiding institutional care, and were often linked with broader national or regional policy strategies or developments. Such investments appear to be contributing to transformational shifts in healthcare systems.

There is less emphasis on reforming hospital systems and improving primary and integrated care, with relatively few projects specifically focused on these issues. Projects specifically focused on hospitals often represented investments in new or upgraded infrastructure or equipment, and rarely emphasised reducing reliance on hospital-based care or improving integration of care.

An overall objective of health system reform is building the overall efficiency and sustainability of healthcare systems. This objective is often not immediately evident in many projects; nonetheless, many projects, especially those focused on deinstitutionalisation, should contribute to this goal through developing a more cost-effective model of service provision.

Among the countries that had Country Specific Recommendations relating to health system reform during 2015-2018 (Austria, Bulgaria, Cyprus, Czech Republic, Greece (Enhanced Surveillance Report), Spain, Finland, France, Croatia, Ireland, Italy, Latvia, Lithuania, Malta, Portugal, Romania, Slovenia and Slovakia), we could not identify any projects targeting health system reform in Austria, Cyprus, Croatia and Ireland. For some of these countries, investments might have been made in other themes that are intended to indirectly improve their health systems. This is likely to be the case in, for example, Croatia and Ireland, where large investments have been made in health promotion and disease prevention, which could indirectly support the health system in the coming years.
Theme 3: Uptake of e-Health and digital health solutions

Background and policy context

The dramatic increase in demand for healthcare within the EU, fuelled by an ageing population, is putting pressure on public health and long-term care expenditures and calling for reforms to address the challenges ahead. With rising healthcare expenditure in the EU, which may continue to growth to an approximate 8.5% of GDP by 2060, the development of e-health and digital health technologies is considered a potential solution to some of the challenges currently affecting the healthcare systems of many EU Member States and those that will arise in the coming years.

The uptake of e-health tools and services using information and communication technologies (ICTs) - including information and data sharing between patients and health service providers, hospitals, health professionals and health information networks; electronic health records; teledmedicine services; portable patient-monitoring devices, operating room scheduling software, robotized surgery and blue-sky research on the virtual physiological human - can improve the prevention, diagnosis, treatment, monitoring and management of diseases.

The uptake of e-health and digital solutions for healthcare, have been identified as potential solutions to improve access to care, quality of care, and increase the efficiency of the health sector in several EU documents. At a high level, the need to develop an economy based on knowledge and innovation is part of the Europe2020 smart growth strategy, as well as emphasized by several policy actions adopted over the last decade since at least the 2004 eHealth Action Plan.

The EU policy framework for eHealth is also envisaged in the Europe 2020 Strategy and the Digital Agenda for Europe. Europe 2020 identifies ‘smart growth’, defined as ‘developing an economy based on knowledge and innovation’, as one of the three reinforcing priorities at the core of the strategy and calls Member States to ‘promote deployment and usage of modern accessible online services (e.g. e-government, online health, smart home, digital skills, security)’. The Digital Agenda for Europe recognizes the potential that e-health technologies can have in improving healthcare, reduce costs and promote better and independent living, including in remote areas. While the Europe 2020 strategy does not directly mention e-health, it emphasizes the importance of ‘exploiting the economic and societal benefits of a digital society’. The EU Digital Single Market (DSM) strategy, which is a Commission’s top priority, is expected to foster a functional Digital Single Market that could contribute €415 billion per year to the EU economy and create hundreds of thousands of new jobs.

Europe has been fostering the development of eHealth at least since the first eHealth Action Plan was adopted in 2004. Since then, multiple initiatives have further targeted the development of ICT solutions for the health sector, both at a general level and at specific areas such as cross-border interoperability of electronic health records, and teledmedicine. In 2012, a new eHealth Action Plan was put forward responding to a 2009 request by Member States and with the input of a public consultation ran in 2011.

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The 2012 eHealth Action Plan aimed at addressing some barriers that were impeding the realization of the promise that ICT solutions could help increase the efficiency of healthcare systems, improve quality of life and unlock health innovations. The following barriers were identified:

1. Lack of awareness and trust among patients, citizens and healthcare professionals in e-health solutions.
2. Lack of interoperability of e-health solutions.
3. Limited evidence showing the cost-effectiveness of e-health solutions.
4. Lack of legal clarity for the development of e-health solutions, especially mobile health (m-health) applications.
5. Remaining differences across regions to access ICT services.
6. Problems and obstacles to the use of data generated by these applications.

These challenges have also been recognized as preventing the realization of the DSM for health and care innovation. In February 2017, the European Commission set up an internal task force to examine EU policy actions to ensure that transformation of health care in the Digital Single Market will benefit people, health care systems and the economy, and to propose new actions to enhance cooperation across EU networks to facilitate and maximise the potential of big data in health and to facilitate efforts to put patients at the centre of healthcare. A public consultation was opened to gather input on the scope of policy actions for the Transformation of Health and Care in the Digital Single Market. Of the nearly 1500 replies received, 80% of the respondents agreed that sharing health data can be beneficial and around 60% of respondents say that they do not have access to digital health services.

In 2017, the EU Commission published the DSM mid-term review, and announced that it would adopt a Communication in 2017 addressing further actions in the area of digital health and care, particularly with regard to: (1) Access to electronic health records for patients and the use of e-prescriptions; (2) The support for data infrastructure to foster research in the prevention and treatment, including personalised medicine in rare, complex and infectious diseases; and (3) The interaction between patients and healthcare professionals to support the participation of patients with a focus on chronic diseases and understanding the outcomes of healthcare systems.

The EU Commission Companion Report 2017 also highlights how technological innovation, including e-health, can potentially expand the range of diseases and conditions that can be managed at the level of primary care, thereby contributing to achieve one primary health policy objective, which is strengthening primary care, while at the same time empowering patients. New developments in telemedicine, eHealth, and mHealth can provide solutions to reduce the amount of time that patients spend dealing with the health system, and their stays at healthcare facilities, thereby contributing better quality of care. Moreover, the development of efficient and resilient health systems— which focus on giving the right services to the right people at the right time to improve wellbeing— requires more robust and better data. While reliable data can help inform health promotion and disease prevention, improve primary care, facilitate the integration across the system and help better workforce planning, policy makers are currently facing major knowledge gaps that limit their ability to make the data deluge work to improve the efficiency and resilience of health systems.

Particular policies have been pursued in the area of e-health with the aim of facilitating cross-border healthcare, and regulating telemedicine and mobile health services. The 2011 Directive on patients' rights in cross-border healthcare sets out the conditions under which patients may travel and have access to healthcare services and establishes the European Reference Networks, which are networks involving...
healthcare providers across Europe, relying on remote and digital technologies to facilitate and improve the care of patients, *inter alia*, by using IT platforms and telemedicine tools to diagnose and treat rare diseases and conditions requiring highly specialised knowledge and resources.

Furthermore, the EU Commission has encouraged cooperation between Member States and supports efforts to develop and implement e-health solutions to improve health systems and to make them more effective and reliable. This has also been recognized by the 2016 OECD overview of health in Europe 88, which suggested that improving the adoption of digital technologies both at the level of primary care and hospitals was needed to cope with the long-term sustainability challenges of European health systems.

**Structural reforms at the Member State level: the EU semester process**

The Annual Growth Survey (AGS) kicking off the 2017 European Semester process identified investments in knowledge, innovation, and ICT, as great contributors to job creation and growth. The AGS also emphasized that higher investments in R&D, ICT and training will be needed to push up growth, noticing that various projects are supporting innovative projects, which contribute to job creation and recognizing that ‘these projects are critical for the future of the EU economy and target areas such as support to SMEs, innovation and R&D, renewable energy, energy efficiency, digital and transport infrastructure’ (emphasis added).

The AGS 2018 continues to call for action on boosting investment, pursuing structural reforms, and promoting responsible fiscal policies, and places emphasis in innovation and competitiveness by stating that ‘the future of Europe’s industry depends on its ability to adapt and innovate by investing in new technologies and embracing digitisation and decarbonisation’ (emphasis added).

The Country-Specific Recommendations (CSRs) and country reports identify structural reforms needed at the level of Member States. While over the past several years, some of them have targeted the health sector, they tend to focus on the overall efficiency of the health care system. According to the EU Commission, progress has been slower in reforms needed in the health and long-term care areas, and also further efforts are needed to modernise the public administration, which includes the healthcare sector 89.

Based on the recent country reports and CSRs, the emphasis in the health sector has been put into reforms tackling the growing challenges of an ageing population and the increasing pressures this generates in Member States’ healthcare systems 90. The Communication from the Commission on the 2017 European Semester identifies health and long-term care as one of the areas in which progress has been slower, mentioning the need to support a more active older population, and the need to make further progress in improving healthcare performance, sustainability and accessibility as well as further promoting equal access to healthcare.

Hence, while the realization of the DSM and other aspects directly related to e-health have been at the forefront of many policy documents, actions and strategies, e-health is not frequently directly referenced at the level of the CSR. Digitalization in general (not specifically related to health or e-health) was explicitly mentioned in the CSR of Belgium and Finland. For Belgium, the priorities included “fostering

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investments in digital technologies and innovation”, but no specific reference was given to e-health; also, no relevant IPs or ESI-Funded projects relevant to this theme has been identified in Belgium.

For Finland, the recommendation regarded administrative reforms concerning municipal structure, and included both social and healthcare services. The recommendation highlights how investments in these reforms would contribute towards increasing productivity and cost-effectiveness in the provision of public services, while ensuring their quality has include the reduction of the sustainability gap in the long run through integration of services, larger arrangers of services and digitalisation. Finland’s national OP has identified a number of priority axes that are relevant to e-health, and has a few funded projects within this theme.

Both the CSR of Germany and Austria make some reference to digitisation, but do not include any recommendation in this area. For Germany, it was mentioned that the country needs to improve its performance in terms of digital public services, and there was a specific mention to e-health within the 2018 Country Report. For Austria, it was highlighted that the country set ambitious targets to facilitate digital transformation.

The CSR of other countries also emphasized that digital skills were a key aspect that they needed to improve (e.g. Portugal). While digital skills are a much broader issue than e-health – being an essential requirement for empowering people, and integrating them in the labour market—they are necessary for e-health initiatives to meaningfully benefit healthcare workers and patients (i.e. patients lacking digital skills will be less able to benefit from the availability of Electronic Health Records and mobile health applications). There might also be reciprocal benefits from initiatives enhancing digital skills and those supporting the development of e-health and digital health solutions.

**Spending priorities for ESI Funds and programming results 2014-2020**

**Pre-programming guidance: the health thematic fiche**

Member States can use ESI funds to support e-health initiatives. More specifically, the Commission’s 2014 guidance health investments under the ESI funds91 - which aims to target spending towards EU health policy goals as well as the implementation of reforms recommended as part of the European Semester process - notes a number of key spending areas that are relevant for e-health; these are presented in the box below. It is important to notice that for the current programming period, ex-ante conditionality 2.1 (digital growth) requires that a strategic policy framework for digital growth is in place that covers, inter alia, e-health.

**Box 3 Spending priorities to support e-health**

<table>
<thead>
<tr>
<th>Thematic Objective 1: Strengthening research, technological development and innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Support research and related IT infrastructures, including to support health information systems.</td>
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</table>

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<tr>
<th>Thematic Objective 2: Enhancing access to, use and, quality of information and communication technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Set-up e-health solutions which are compatible with EU standards, ensuring (cross-border) interoperability of IT systems.</td>
</tr>
<tr>
<td>• Support the use of uniform electronic health care information system, electronic prescription system (medicines, referrals etc.), patient electronic medical records, telemedicine and telecare.</td>
</tr>
</tbody>
</table>

• Create legal basis for e-health (including quality standards/certification for applications and data management, data protection).

• Improve IT tools for coordination of response to health threats and for health information systems for EU-level reporting.

• Support the development of new ICT based solutions and services to address the needs of an ageing population and empower users to use them to remain active and independent for longer. Support measures to enhance the attractiveness of the health professions in rural and remote areas to improve access to healthcare and territorial cohesion within a Member State, by means of, for example, financial compensation, housing or travel support or via a career mandatory phase or promotion opportunities.

The ESF can indirectly contribute to the above objective through its own investment priorities under TO 8-11. necessary reforms (which are recommended under Thematic Objective 9) to increase health systems’ cost-efficiency, quality and sustainability, and to reinforce health systems.

Programming: the selection of investment priorities/intervention fields and definition of specific objectives and indicators

The Investment Priorities listed in the fund-specific regulations\(^\text{92}\) that are potentially relevant for e-health fall primarily under the Thematic Objectives 2 and 1, and in a few cases with 3, typically associated with the ERDF. The ESF can also indirectly contribute to the objective of developing e-health technologies through its own Investment Priorities under Thematic Objectives 8, 9, 10 and 11. Among the Investment Priorities selected by multiple Member States are:

- **ERDF 1b:** Promoting business investment in R&I, developing links and synergies between enterprises, research and development centres and the higher education sector, in particular promoting investment in product and service development, technology transfer, social innovation, eco-innovation, public service applications, demand stimulation, networking, clusters and open innovation through smart specialisation, and supporting technological and applied research, pilot lines, early product validation actions, advanced manufacturing capabilities and first production, in particular in key enabling technologies and diffusion of general purpose technologies.

- **ERDF 2a:** Extending broadband deployment and the roll-out of high-speed networks and supporting the adoption of emerging technologies and networks for the digital economy.

- **ERDF 2c:** Strengthening ICT applications for e-government, e-learning, e-inclusion, e-culture and e-health.

In total, 24 Member States planned Investment Priorities that could be relevant for e-health in their OPs, and only 4 Member States did not include any relevant IPs for this theme in their OPs (Austria, Hungary, Luxembourg and Slovenia). The Investment Priority most frequently chosen was 2c, which focuses on strengthening ICT applications in various sectors including e-health, followed by IP 1b, which focuses on promoting business investment in R&I, developing synergies between enterprises, research centres and the academic sector. As shown by this IP, this thematic highly overlaps with thematic block 4 on research and innovation. Several Interreg projects selected IP 9a (Investing in health and social infrastructure which contributes to national, regional and local development, reducing inequalities in terms of health status, costs and risks).

promoting social inclusion through improved access to social, cultural and recreational services and the transition from institutional to community-based services). A full list of the relevant Investment Priorities for this theme and the Member States that selected them in the OPs can be found in Annex 1.3 (the thematic mapping document).

The specific objectives that have been developed by the Member States to guide spending in this theme are typically broad and do not specifically refer to the health sector. While some tackle ICT in general (e.g. Bulgaria: ‘increase of e-services available to citizens and businesses’), others target the public sector (e.g. Cyprus: ‘utilizing ICT to improve public services’, France: ‘promote the emergence of innovative public services and digital content and their dissemination directly target the health sector’, and Poland: ‘enhanced access to public sector information, e-services and e-administration to citizens and businesses’). Only a few cases directly reference the health sector (e.g. Spain: ‘promote digital public services, digital literacy, e-learning, e-inclusion and e-health’, and Belgium/France: ‘strengthen and sustain the networking and provision of cross-border health services to the population’).

There are no common indicators requirements for ESF or ERDF programmes that would measure impacts related to e-health. However, several programme-specific indicators developed by different Member States are related to e-health. These indicators typically refer to the number of participants in health programmes or number of such programmes. Examples of programme-specific indicators used for this theme by Member States are:

- Number of projects for development of e-governance sectoral systems (e-procurement, e-health, e-customs, e-archiving, e-insurance, etc.) (BG).
- % Population covered by the Digital Health Services of the National Health Service (ES).
- Number of new digital services available to the public in the areas of health and education (FR).
- ICT solutions addressing the healthy active ageing challenge and e-Health services and applications (including e-Care and ambient assisted living) (HR).
- New e-services applications in the areas of health, environment, customs and interdepartmental services (MT).

Very few Interreg Programmes include monitoring indicators. The following examples have been found with relation to the Theme 3:

- Number of tools/instrument to access health and social services on both sides of the border (BE-FR).
- Number of health ICT systems developed (EL-BG).

The 2014-2020 OPs are broad enough to allow Member States to support projects targeting a range of policy goals in this area, including the development of interoperable system for the storage and sharing of medical data, the development of mobile applications and solutions to support primary care, reduce visits to hospitals, and increase access to healthcare for groups of patients and users of the healthcare system, or in areas with special needs (e.g. remote or rural areas).

Projects supporting e-health 2014-2020

Annex 1.3 (the thematic mapping document) contains the results of the mapping of Member States spending on projects classified as supporting e-health. In order to get a composite picture of what has been funded in this area to support e-health, it is necessary to look both at the numbers of projects and also the total expenditure. Across the six health-related themes covered by the research, a relatively small number of projects support e-health (225, out of a total of 7,404), which is the equivalent of around 3% of the total.

Although this is the thematic block for which the smallest number of projects have been identified, the share of e-health projects in terms of project size is larger. The total budget of thematic block 3 projects is around EUR 0.6 billion or around 7% percent of all health projects identified. There is a mix of smaller
projects (< EUR 200,000) that aim at developing particular applications or solving specific problems in a functioning platform (e.g. a Estonian project for introducing a new version of a message protocol), and a number of very large projects that aim at building IT systems, public databases and e-health platforms, usually given to various public authorities (e.g. a project in Poland, for the capital city of Warsaw, the National Institute for Public Health, and the Ministry of Defence and a large project developing the national e-health system for Hungary).

So far, there have been 225 projects in 19 Member States funded in support of the e-health thematic block. Nearly half of these projects (42%) are in Poland and Spain. No projects supporting the e-health thematic block were found in Austria, Belgium, Cyprus, Ireland, Lithuania, Luxembourg, Malta, Slovenia and Slovakia. 19 relevant projects are also financed under the Interreg A and B cooperation programmes. Further details about e-health projects supported with ESI Funds are presented in the figure below.

**Figure 9 E-health projects per Member State and Interreg programme**

A large number of projects in Poland are supporting the development of IT systems, databases and platforms as well as supporting the digitisation of services in various health centres. In Denmark, a large project, “Care4all”, focuses on ambient assisted living. Several Interreg A and B projects have also addressed e-health, focusing on cross-border health programs and databases, proximity mountain medicine services based on telemedicine, and telemedicine services to support better access to healthcare services and reduce inequalities. Another large project in Hungary is setting up a national platform for all e-health services.

Budget information is available for all of the thematic block 3 projects. The total budget of all e-health projects is around EUR 608 million, while the average project budget is approximately EUR 2.7 million. The largest spending on e-health projects is in Poland, around EUR 224 million. Spain has the second largest budget for thematic block 3 projects of nearly EUR 160 million. A significant budget, nearly EUR 33 million, for e-health projects is actually distributed through the Interreg A and B cooperation programmes. Further details about the total budgets of thematic block 3 projects are presented in Figure 10 below.
In terms of average project size, the largest projects are found in Croatia (around EUR 36 million), however the country has only two e-health projects identified which are of fairly large size. One of these, is a large project in Croatia that aims at the development of e-service, for which € 70.631.181 have been earmarked for the use of e-governance services by citizens in line with the Strategy e-Croatia 2020. Eligible applicants from health sector are: Ministry of health, Croatian health insurance institute, plus 5 ministries and two governmental bodies. Similar large-scale initiatives supporting the development of e-services are found in Bulgaria (National Health Information System), Portugal (Health Data Platform in the Health System), Latvia (common deinstitutionalization process support system), and Poland (e-services). The average project sizes in the countries with the most projects are approximately EUR 4.5 million (Poland), EUR 3.5 million (Spain), EUR 0.5 million (Germany) and EUR 0.9 million (Italy). The smallest average budget for e-health projects is found in Estonia, around EUR 0.2 million.

Ultimately, it should be borne in mind that because e-health and digital health technologies overlaps to a certain extent with theme 4 (Research and Innovation in health), it is very likely that support for the development of e-health solutions is happening through other projects that primarily target this theme and it is also possible that many e-health solutions might also relate and indirectly support other themes (e.g. Thematic block 2 support for health systems) and are therefore not mapped as part of this Thematic Block 3.

The e-health projects were further classified according to six sub-themes, in order to gain a better understanding of the issues being targeted. The breakdown of projects according to sub-theme is shown in the table below.

Table 7 Sub-themes for thematic block 3 ‘e-health’

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Number of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>T3.1</td>
<td>Electronic health records (used by healthcare professionals)</td>
<td>92</td>
</tr>
<tr>
<td>T3.2</td>
<td>Personal health records (used by patients)</td>
<td>3</td>
</tr>
<tr>
<td>T3.3</td>
<td>Health information exchange</td>
<td>58</td>
</tr>
<tr>
<td>T3.4</td>
<td>Telehealth</td>
<td>67</td>
</tr>
</tbody>
</table>
The vast majority of projects co-financed by ESI funds to date relate to the development of electronic health records used by healthcare professionals (sub-theme 3.1), telehealth (sub-theme 3.4) and health information exchange (sub-theme 3.3). Sub-theme 3.1 covers a large number of medium to large projects that support the development of e-services, platforms and systems related to the use of electronic health records. Among the beneficiaries are mainly public entities such as Ministries, regional and local health authorities, and in a few cases several research institutes and private entities.

Exemplary projects

There are many good practices to be found across the projects across the portfolio of 2014-2020 projects funded to date that support e-health. These projects have been selected by the ESI Funds for health team based on their interesting or innovative character, policy relevance and potential for replication in other EU countries or regions. An overview of the ten selected projects for the e-health thematic block is provided in Table 7 below.

Some of these projects fund large scale programmes that introduce e-health services (e.g. EESZT in Hungary), and are similar to other large projects found in several countries, which aim at developing the use of e-governance and other electronic services, including e-health (e.g. Croatia, Poland) but do not focus on one particular health area. Other smaller projects also aim at developing broad e-tools that can be used in different health areas, such as the use of e-conference tools and mobile applications (E-patient project in Denmark), the development of a regional database that can be used by health structures (Master Patient Index project in France), or the development of a set of novel solutions for digital integrated healthcare systems (DigitalLIFE4CE project, Interreg B, Central Europe).

Other projects are more specific and aim at developing e-health services to tackle particular health challenges. For instance, the R-ITAREPS project (Czech Republic) aims at developing a tele-health tool for early recognition of signs of psychotic disorder relapse, and the eMEN project (Interreg B, North-West Europe), which aims at supporting a EU wide platform for e-mental health innovation, and the DIAPRO MS-APP (The Netherlands), which supports a smart application that enable the combination of data from patients with multiple sclerosis to support a more accurate and better diagnosis and prognosis. A large, yet specifically focused project is the Interreg A mPOWER project, which supports the development of digital tools to help alleviate the pressure on primary care due the increase in older people with long term medical conditions in Ireland and Scotland, including mhealth solutions, and telemedicine tools.

One key aspect of the development of innovative e-health solutions is the possibility that projects can be developed with the support of both the public and private sectors. For instance, the project RUVes (Sweden) supports the collaboration of SMEs and other relevant actors with the public healthcare sector in order deliver e-health solutions and also the project eMEN (Interreg B, North-West Europe) aims at supporting SMEs to develop e-mental health products.
<table>
<thead>
<tr>
<th>Project title</th>
<th>Member State</th>
<th>Beneficiary(ies)</th>
<th>Budget € Co-finance % Fund Dates</th>
<th>Brief description of project activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. R-ITAREPS</td>
<td>Czech Republic</td>
<td>FOKUS České Budějovice, z. ú. (Public service company), NGOs FOKUS Tábor, z. ú., FOKUS Mladá Boleslav, and PDZ Pardubice, NUDZ - National Institute of Mental Health</td>
<td>8,017,408 CZK EUR 0.3 M 90.86 % ESF 2016-2018</td>
<td>Supports the development of an extended version of a tele-health tool aiming at the rapid and targeted recognition of early warning signs of psychotic disorder relapse, allowing timely interventions. The original tele-health tool was developed by the project ITAREPS.</td>
</tr>
<tr>
<td>2. E-PATIENT</td>
<td>Denmark</td>
<td>SydDanmark, SMEs (Medware Aps, KKart Aps, Applikator Aps, Sundhedsekspressen Aps, Quarky Point IVS, Visualcare Aps), and the University of Southern Denmark</td>
<td>9,130,840 DKK EUR 1.2 M 50 % ERDF 2014-2017</td>
<td>Supports the development of new, innovative and scalable concepts for patient preparation and digital communication for patients in the form of: (1) e-conference tools to communicate with patients and reduce hospitalization; (2) targeted and audio-visual educational content for patients; and (3) mobile applications to improve the participation of patients in their own care.</td>
</tr>
<tr>
<td>3. Master Patient Index</td>
<td>France</td>
<td>Groupement de Coopération Sanitaire (GCS), Télésanté Lorraine</td>
<td>EUR 521,225 35% ERDF 2015-2018</td>
<td>Supports the development of a regional database of patient identities that would be available and managed by health structures for their internal needs. It is a prerequisite to another project related to medical imaging sharing.</td>
</tr>
<tr>
<td>4. DIAPRO MS-APP</td>
<td>Netherlands</td>
<td>Orikami, Drug Target Identification and Development (DTID), Ltd.</td>
<td>EUR 444,375 35% ERDF 2015-2017</td>
<td>Supports the development of a smart application, which enables the combination of data from patients with multiple sclerosis (MS), including genetic data, data on biomarkers and possible drug targets, with clinical information coming from the patients about their symptoms. This app would support MS specialists in earlier and more accurate diagnosis and prognosis, and with time, it could lead to better treatments for individual MS patients.</td>
</tr>
<tr>
<td>5. Regional Development in Welfare Technology and e-health services cooperation RUVes</td>
<td>Sweden</td>
<td>Linneaus University</td>
<td>EUR 546,815 50 % ERDF 2016-2019</td>
<td>Supports the development of a model describing the conditions for the common development process between the healthcare sector and SMEs, and other relevant actors to support and facilitate cooperation between SMEs and the health care sector to deliver e-health solutions.</td>
</tr>
<tr>
<td>6. mPOWER</td>
<td>Interreg VA United Kingdom (Ireland, Northern Ireland, Scotland)</td>
<td>NHS 24, Scotland</td>
<td>EUR 8,708,617 85% ERDF 2016-2021</td>
<td>Supports the development of 3 digital tools to help alleviate the pressure on primary care due the increase in older people with long term medical conditions in Ireland and Scotland: (1) mobile devices to monitor health and wellbeing conditions in older people with chronic conditions; (2) digital apps to receive personalised health and care information; and (3) videoconferencing tools to facilitate patients’ access to general practitioners and specialists.</td>
</tr>
<tr>
<td>Project title</td>
<td>Member State</td>
<td>Beneficiary(ies)</td>
<td>Budget €</td>
<td>Co-finance %</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------</td>
<td>-----------------</td>
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<td>--------------</td>
</tr>
<tr>
<td>7. EpiBaza</td>
<td>Poland</td>
<td>National Institute for Public Health - State Institute for Hygiene (NIZP-PZP ISP)</td>
<td>EUR 6,022,123</td>
<td>85%</td>
</tr>
<tr>
<td>8. e-mental health innovation and transnational implementation platform North West Europe (eMEN)</td>
<td>Interreg B North-West Europe</td>
<td>Stichting Arq</td>
<td>EUR 5,360,000</td>
<td>60%</td>
</tr>
<tr>
<td>9. DigitalLIFE4CE</td>
<td>Interreg B Central Europe</td>
<td>University of Applied Sciences Burgenland</td>
<td>EUR 1,551,182</td>
<td>80%</td>
</tr>
</tbody>
</table>
| 10. Capacity Development and further improvement new functions of Electronic Health Cooperation Service Space (EESZT) | Hungary | National Healthcare Service Centre (AEEK) | EUR 18,500,000 | 100% | ESF 2013-2020 | Introducing new centralised E health services, e.g.:
- developing /improving access to channels of the Electronic Health Cooperation Service Space;
- Personal Health Record (PHR): Developing/ designing new services for Electronic Health Cooperation Service Space with the aim to provide support for Telemedicine clinics;
- establishing specialized Big Data Registers in public health (immunization, pregnancy child care booklet, registry of exposure) |
Conclusions

E-health and digital health technologies can contribute to developing solutions that can improve the efficiency, resilience and sustainability of health systems. Given the important challenges ahead posed by an ageing population and the increasing demand for healthcare services and long-term care, the uptake of e-health and digital health technologies have received increasing attention. While the development of a digital single market and the uptake of e-health and digital technologies has been at the core of several EU policy actions, the promises of e-health remain largely unfulfilled, hence ESI Funds have a key role to play in this area.

Only a small number of projects (around 3% of the total identified in this project) are related to e-health. However, due to relatively large budgets, these projects account for around 7% of the budget of all health projects identified. However, this theme is also a cross-cutting one, and it is possible that several projects classified in other themes—especially under theme 4 on research and innovation in health—also support the development of e-health solutions. While digitalisation has been addressed within the European Semester, the only country for which we identified a reference to the need to improve their e-health systems was Germany (2018 Country Report); several ESI funded projects identified in Germany related to e-health.

The projects identified can be categorised in two different groups. A first group of projects focus on the development of electronic services for healthcare systems in general, including electronic health records, e-tools and mobile applications. This is the case of several projects in Poland supporting the development and integration of e-health systems and ICT systems to support care services in different regions, a project in Croatia, which aims at increasing the use of e-governance services in the health sector, a project in Bulgaria supporting the implementation of the National Health Information System, a project supporting the development of the e-health system in Hungary, and a project in Greece, supporting the implementation of modern ICT solutions to support the Health Units of the National Health Service.

A second group of projects focus on supporting specific e-health solutions for a particular disease or condition (e.g. the R-ITAREPS project in the Czech Republic, which supports the development of a tool for the early diagnosis of psychotic disorder relapse, the Interreg B eMEN Interreg B project, which supports a EU wide platform for e-mental health innovation, and the DIAPRO MS-APP in The Netherlands, which supports a smart application that enable the combination of data from patients with multiple sclerosis to support a more accurate and better diagnosis and prognosis.)
Theme 4: Research and innovation in health and life sciences

Background and policy context

Research and innovation are key topics for EU policy in general, and for EU’s health policy in particular. Defined as the development of the new concepts, ideas, services, processes, or products, R&I can contribute to improving treatment, diagnosis, education, outreach, and prevention of diseases. In the long-term, R&I aims at improving the quality, safety, outcomes, efficiency and costs of the health system, which can contribute to the design of more effective and resilient health systems, digital medical solutions, and more efficient, accessible and targeted diagnostic, therapeutic and preventive medical solutions, as well as to the improved training of EU’s health workforce in the use of innovative medical products, processes and services. ESI Funds can support research and innovation in health through different types of interventions: by supporting the infrastructure needed for research and innovation (including support services), improving the skills of healthcare and industry workforces in order to contribute to Member States' actions in innovation in health, or developing new health products and services.

The European Commission Staff Working Paper “Investing in Health”93, highlights how ‘technological developments can change the ways of delivering and organizing the provision of health services and goods and, under certain conditions, help increase cost-efficiency’, and it recognizes that innovations can focus on improving ‘cost efficiency through sound innovation and contribute to a better assessment of the performance of health systems’94. While new medical technologies are one of the main drivers of healthcare spending, the use of tools such as Health Technology Assessments (HTA)—which has been considered a successful example of better regulation for health—can help policy makers achieve a balance between advancing innovation and ensuring the financial sustainability of healthcare systems. R&I in health is also key to the development of e-health tools (covered by Theme 3), and hence, can contribute to more efficient and resilient healthcare systems through the development of electronic health records, large medical databases, portable and wearable devices. In the recently published document “The State of Health in the EU: Companion Report 2017”, the EU Commission’s Directorate-General of Health and Food Safety (DG-SANTE), also emphasized the role of medical innovations in empowering patients and expanding the number of problems that can be solved at the level of primary care95.

R&I is a priority embedded in Europe 2020 and Cohesion Policy 2014-2020. Europe 2020, which sets forth the EU’s growth strategy for the coming decade, establishes three priorities for Europe: “smart, sustainable and inclusive growth”. Smart growth emphasizes knowledge and innovation as the drivers of future economic growth. The European Commission96 identified “smart growth - developing an economy based on knowledge and innovation” as one of the three priorities of Europe 2020. While R&I investments can broadly contribute to the innovation agenda, investing in health can also tackle major challenges in EU’s health policy, hence also contributing towards sustainable and inclusive growth—the other two major priorities of Europe 2020. The Europe 2020 strategy also established the Flagship Initiative “Innovation Union”, with the aim to “re-focus R&D and innovation policy on the challenges facing our society, such as climate change, energy and resource efficiency, health and demographic change” (emphasis added).

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94 Ibid, p. 2.
The 2015 Innovation Union Report reviewed this Flagship Initiative, and outlined the steps taken so far, open issues that need to be addressed, and next steps that still need to be taken. It highlighted how the use of ESI Funds to support R&I programs was contributing to smart growth as envisaged in the Europe 2020 strategy, and developed 34 specific commitments for action, including commitments 24 and 25 ("Improve the use of structural funds for research and innovation") which among other things, addresses the "urgent need to tap into Europe’s unexploited potential in research and innovation through a stronger involvement of those Member States and regions that are less involved in R&I" and reiterates the role of structural funds, and especially the ERDF should have in committing financial resources to support innovation initiatives.

A major challenge for the EU, is in fact, to address the gap in R&I potential between Member States and regions, and between the EU and the rest of the world. The 2017 European Innovation Scoreboard found that while EU innovation performance continues to increase, a few countries are leading innovators (Sweden, followed by Denmark, Finland, the Netherlands, the UK, and Germany) and another selected group are the fastest growing innovators (Lithuania, Malta, the UK, the Netherlands, and Austria).

At the same time, addressing the gap in R&I potential within EU Member States and regions, and between the EU and the rest of the world by investing in R&I in health, can also contribute towards achieving other objectives beyond R&I (e.g., contributing to a thriving workforce, improving access to healthcare, supporting the development of innovative e-health solutions, etc.). Two major instruments aim at addressing these gaps: the ESI Funds and Horizon 2020 (H2020). The use of these two funding sources (as well as other EU and national funding programs) to produce meaningful innovations in the field of health and life sciences is impacted by important challenges: (1) first, the generation, adoption and diffusion of health innovation across the care cycle relies on healthcare systems that are accessible, affordable and more sustainable; (2) second, the development of health innovations usually requires substantial investments and meaningful collaboration and coordination across a wide range of participants, including the public and the private sector (e.g. collaboration between universities, public research centres, hospitals and the private industry); (3) innovations in the health sector are usually highly regulated and often take a long time between development and commercialization.

Given the above challenges and the key role that R&I could play in the health field, maximizing the cost-effectiveness of EU funding programs is a key goal of both innovation policy and health policy. While both H2020 and ESI Funds used for R&I could support R&I activities, each programme has a distinct focus. H2020 (as well as other EU research and innovation programs) often prioritise transnational projects and do not consider geographic specificities in allocating funds. ESI Funds on the other hand, aim at supporting the overall harmonious development of Member States and regions; hence the place-based approach used in supporting economic and social cohesion with co-funding rates being different by region and programme. Furthermore, H2020 focuses on individual R&I projects tackling the whole cycle of innovation, and while it takes into account EU strategies and RIS3 (see box 4.1 below), it mostly focuses on issuing competitive calls for proposals addressed to multi-country consortia. ESI Funds on the other hand, focus on improving R&I capacities and eco-systems to promote regional growth; hence, calls issued under ESI Funds are related to policy prioritization based on cohesion considerations and RIS3 priorities. Finally, another major difference between these two instruments is that H2020 is centralised at the EU level, and awarded directly to final beneficiaries or multi-country entities, whereas the responsibilities for ESI Funds fall under the Member States, and are carried out by the Managing Authorities designated by the Member States to manage assistance from ESI Funds. Furthermore, assistance under ESI Funds is subject to specific conditions called "ex ante conditionalities", which for the use of ESI Funds in R&I involves the existence of a smart specialisation strategy (RIS3), establishing areas of R&I that can be funded.

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ESI Funds (in particular ERDF), should mainly concentrate in the need for R&I infrastructure and capacity building in less developed regions (moderate and modest innovator regions), and on promoting business investment in R&I within more developed regions\(^9\). Countries and regions should define their RIS3, i.e. identify and develop some areas within competitive advantages in order to have access to ESI Funds for R&I and to better use them to promote their R&I capabilities and close the gaps with other EU regions and countries. Whether countries should choose a particular sector, such as health, also depends on the need to develop innovations in this area. A 2015 report found that many European regions identified health as a key area for R&I in their RIS3:

“While at this stage, a complete overview of the health-related smart specialisations is not yet available, a review of information on the RIS3 platform shows that more than 30 EU regions have chosen ‘Health’ as one of their priority topics. Our assessments of a sample of RIS3 confirm that the ‘health’ topic is present in many regions, in various ways. In some of Greece’s strategies, e.g. an ageing population is considered an opportunity for the tourism industry\(^10\).

Hence, a key point to the efficient use of ESI Funds to support R&I is the need to ensure coordination and synergies with the established RIS3, and with other funding programs that can also promote R&I. The importance of achieving synergies between the ESI Funds and Horizon 2020 has been highlighted in several policy documents. The Horizon 2020 - Work Programme 208 mentions that “actions included in this work programme may also gain more impact and scope by envisaging synergies with the European Structural and Investment Funds (ESIF) in health and related fields”\(^101\). The Common Provisions Regulation 1303/2013 (ESIF)\(^102\) explicitly derogates the non-cumulative principle for combination with Horizon 2020, specifying that support can be obtained from both H2020 and ESI Funds, provided that grants do not cover the same cost items. The Guidance for policy-makers and implementing bodies on synergies between ESI Funds, Horizon 2020 and other R&I programs\(^103\) further develops the idea that synergies between the programs should contribute to achieving their objectives and ensuring the sustainability of projects.

One of the tools to achieve synergies between H2020 and the ESI Funds has been the “Stairway to Excellence” project, which aims at supporting EU13 member states and their regions in using the synergies between EU funding programs, including ESI Funds and Horizon 2020, directly targeting the innovation gap between EU countries and regions and fostering the effective implementation of national and regional smart specialization strategies. One particular initiative, the ‘Seal to Excellence’ funds proposals for H2020 that were deemed excellent, but that did not receive funding under that programme, so that they can obtain ESI Funds. But more in general, the ‘Seal to Excellence’ project addresses the need for more coordination to achieve the main objectives of each programme. Regarding ESI Funds, which in this area should concentrate in funding strategic infrastructures, further synergies can also be sought with the SME instrument, which is part of the European Innovation Council pilot launched in 2017 to support SMEs for breakthrough innovation projects\(^104\).

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\(^{100}\) Expert Group established to assess the contribution of “Research and Innovation Strategies for Smart Specialisation” (RIS3) to the Europe 2020 Growth Strategy Perspectives for Research and Innovation Strategies for Smart Specialisation (RIS3) in the wider context of the Europe 2020 Growth Strategy, 2015.


\(^{103}\) European Commission -DG-REGIO. Enabling synergies between European Structural and Investment Funds, Horizon 2020 and other research, innovation and competitiveness-related Union programs, Guidance for policy-makers and implementing bodies, 2014.

However, important obstacles remain in the way of achieving meaningful synergies between ESI Funds and H2020. These stem from the fact that H2020 started sooner, while some ESI Fund Operational Programs were not adopted until mid-2015, and are also due to the more restricted nature of RIS3 strategies, which must focus on a limited number of technology sectors. Finally, H2020 funds are more difficult to obtain for regions lagging behind, and while this is due to the conceptual and strategic differences between the two programs—with H2020 focusing on funding excellent research and ESI Funds focusing on building regional capacities and overcoming structural differences across Member States and regions—this also limits the possibility of achieving meaningful synergies between the two programs. Additionally, major organizational and administrative differences between the two programs can also complicate the synergies. For instance, while regional authorities of some Member States are the intermediary bodies with responsibilities for R&I, for other countries this task remains allocated at the national level (e.g. Spain, where the Ministry of Finance is the single authority in charge of ERDF for 2014-2020), which can complicate the coordination of RIS3 H2020.

Further synergies between different EU funds for innovation could also be facilitated by deeper collaboration between the public and the private sector. While the Innovation Initiative and the SME Instrument are emphasizing the active involvement of stakeholders—including SMEs and patients—the prevailing perception within the industry that innovation is purely driven by public authorities might pose an obstacle to further progress. Additionally, it is important to consider that many of the tools and products that ESI Funds beneficiaries are developing with benefits along the care continuum need to account for the legislative and regulatory factors that could delay the translation of ideas from bench to bedside. A common filter for new solutions is patient safety and security. For instance, the new European Regulation for Medical Devices, which came into force in May 2017 and will be legally binding from 25 May 2020 could make it more difficult to put ‘ICT for Health’ on the market. While the logic behind the new Medical Devices Regulation and similar legislation that applies to health innovations is clear, it could also act as a significant obstacle to making the medical device sector both locally and globally competitive.

Box 4 Smart Specialisation Strategies

What is a smart specialisation strategy (RIS3)?

Smart specialisation strategy (S3) is an approach that aims at boosting growth and jobs in Europe, by enabling each region to identify and develop its own competitive advantages. The terms ‘Smart Specialisation’, ‘Smart Specialisation Strategy’ (S3) are often used as synonym of ‘Research and Innovation Strategy for Smart Specialisation’ (RIS3).

What is the legal basis of Smart Specialisation Strategies?

The Regulation (EU) 1301/2013 of the European Parliament and of the Council of 17 December 2013 defines ‘smart specialisation strategy’, as the national or regional innovation strategies which set priorities in order to build competitive advantage by developing and matching the own strengths in R&I to business needs, in order to coherently address emerging opportunities and market developments while avoiding duplication and fragmentation of efforts. A smart specialisation strategy may be included in a national or regional research and innovation (R&I) strategic policy framework and shall be developed with the participation of national or regional managing authorities and stakeholders such as universities and other higher education institutions, industry and social partners.

Smart Specialisation Strategies as an ex-ante conditionality

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Smart Specialisation Strategies

To ensure the effectiveness of regional policy investments, smart specialisation strategies need to be in place (‘ex-ante conditionality’) before receiving the financial support of the European Regional Development Fund on research and innovation in the 2014-2020 period. The RIS3 ex-ante conditionality requires EU Member States and regions identify the knowledge specialisations that best match their innovation potential through a process of ‘entrepreneurial discovery’, i.e. involving key innovation stakeholders and business.

Smart Specialisation Strategies and synergies between ESI Funds and Horizon 2020

In "Enabling synergies between European Structural and Investment Funds, Horizon 2020 and other research, innovation and competitiveness-related Union programs, Guidance for policy-makers and implementing bodies”, the Commission based its strategic approach to achieve such synergies also through the involvement of stakeholders to shape the “smart specialization strategies” (RIS3), which set out the national or regional frameworks for investments in research and innovation not only from ESI Funds, but also from all other funding sources, hence involving the authorities in charge of H2020 in the process of defining the RIS3 would contribute towards achieving synergies between the two programs.

Collaboration and specialization: clusters and RIS3

Clusters play a fundamental role in supporting innovation, increasing competitiveness and facilitating international access to SMEs. All these factors are fundamental for R&I to occur in every sector, but they are particularly important for innovation in the health and life sciences, especially with regards to costly, high-risk and long innovations that have to be translated from the lab to the clinic. The importance of clusters has been recognized by the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the regions, for a European Industrial Renaissance: ‘Building on the work of the task forces, the Commission proposes to Member States to combine regional and industrial policy tools to create Smart Specialisation Platforms to help regions roll out smart specialization programs by facilitating contacts between firms and clusters, enabling access to the innovative technologies and market opportunities’.

The important role recognized to the use of “regional smart specialization strategies (RIS3), also emphasizes the fact that innovation is rarely the result of individual actions but rather emerges from joint collaboration, network spillover effects and synergies among actors in different sectors and regions. Hence, RIS3 takes advantage of the fact that innovation usually thrives in specific companies and regions that muster the right conditions, competences and skills.


R&I policy in health is not only developed by general funding programs but also through multiple instruments setting up policy goals and objectives in various priority areas. For example, the European Innovation Partnership (EIP) on Active and Healthy Ageing (2011), aims at tackling some of the challenges of EU’s ageing population by bringing together public and private stakeholders to accelerate the deployments of healthcare and age-related innovations. Support is given by the EU Commission to facilitate the setup of relevant conditions and align funding investments with the priorities of this EIP. As a result, this EIP can support the delivery of the policy objectives of Europe 2020 flagships.

In addition to the above, the following strategies and Action Plans can also contribute to the identification priorities for investment in health, according to the needs of the EU.

- In Open Innovation, Open Science, Open to the world (2016), the EU set forth an ambitious agenda to foster innovation in an open way, which stresses the centrality of collaboration, diffusion, etc. to tackle major societal challenges. Health, along with Energy, Food and Water are mentioned as the four priority areas for action.
- In the EU One Health Action Plan against Antimicrobial Resistance (2017), the EU lays out the priority of fostering investment in innovations to tackle the global problem of rising antimicrobial resistance, which could impose a deadly and costly toll on the EU and the world and significantly undermine efforts done by medical innovations in the past centuries.
• Commission Communication: Action against Cancer (2009), and Action Plan on HIV (2009).
• Council Conclusions on Public Health Strategies on neurodegenerative diseases (2008).
• European Pact for Mental Health and Wellbeing (2008).

R&I in health is a topic that can cut across many of the other themes explored in this report. In particular, the synergies between R&I in health and Theme 3 (e-health and digital health technologies) are recognized by an important number of EU policies and initiatives. Given its implications for EU’s economic, social growth and sustainable development, R&I has been a key aspect of the Europe 2020 strategy and a focus of several different EU funding programs. Thus, one key aspect at the EU policy level has been the differentiation of each relevant funding programme in terms of objectives and the promotion of synergies between different funding programs (mainly Cohesion Policy and Horizon 2020). R&I has also featured in many of the country reports analysing Member States’ efforts to implement recommendations from the European Semester process. However, these reports refer to R&I and research and development (R&D) activities in general, and not to R&I in health and life sciences. Because of its cross-cutting nature, it is very likely that support for R&I in health is also happening through projects that primarily target other areas of health (e.g. Theme 2, which supports health systems, could also promote innovations aiming at designing more efficient health systems, and Theme 3, which supports the development of e-health solutions, could also support the development of R&I related to digital and e-health solutions).

Structural reforms at the Member State level: the EU semester process

Research and innovation have a key role to play in the achievement of the Europe 2020 goals related to smart, sustainable and inclusive growth. As such, the efforts of Member States to invest in R&I have featured in the country reports and recommendations developed as part of the European Semester process. The Annual Growth Survey (AGS) 2017 focused on boosting investment, pursuing structural reforms, and promoting responsible fiscal policies. Within these, it highlighted the importance of supporting investments in knowledge, innovation, and ICT, which are drivers of growth and feature high on the agenda. The AGS also emphasized that higher investments in R&D, ICT and training will be needed to support growth, but that Member States need to ensure the efficient allocation of capital and highlighted the importance of pursuing structural reforms to address the main challenges that the EU will continue to face in the health area. According to the AGS 2017, public expenditure in health care and long-term care will be driven not only by an ageing population and the increasing burden of chronic morbidities and long-term care associated with these demographic changes, but also by new technological developments (emphasis added).

Regarding the first aspect, “boosting investment”, the AGS 2017 called on Member States to increase the impact of EU funds in support of the Investment Plan for Europe. It noticed that various projects are supporting innovative projects, which contribute to job creation, and says that ‘these projects are critical for the future of the EU economy and target areas such as support to SMEs, innovation and R&D, renewable energy, energy efficiency, digital and transport infrastructure’. The AGS 2018 continues to call for action in the three areas mentioned above, and places emphasis in innovation and competitiveness by stating that ‘the future of Europe’s industry depends on its ability to adapt and innovate by investing in new technologies and embracing digitisation and decarbonisation’ and by emphasising the need to diffuse new technologies among SMEs.

The Country-Specific Recommendations (CSRs) and country reports identify structural reforms needed at the level of Member States. While over the past several years, some of them have targeted the health sector, they tend to focus on the overall efficiency of the health care system. According to the European
Commission\textsuperscript{108}, R&I (under the broad category of “Structural policies”) was covered in the CSR of the following countries: BE, CZ, DE, EE, ES, FR, IE, LU, and NL. For these countries, however, none of the CSRs specifically addressed health. The next table summarizes the main problems and CSRs related to overall R&I issued in 2017.

Table 9 CSRs related to Theme 4 in 2017 European Semester process

<table>
<thead>
<tr>
<th>Country</th>
<th>The problem</th>
<th>Recommendation (CSR 2017)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>Needs to increase the public R&amp;D intensity, which remains low compared to Sweden, Denmark, Finland, Germany, and the Netherlands</td>
<td>Foster investment in knowledge-based capital</td>
</tr>
<tr>
<td>Ireland</td>
<td>Needs to increase public R&amp;D expenditure, which remains low (ranks 25\textsuperscript{th} in the EU)</td>
<td>Better target government expenditure, by prioritising public investment in innovation</td>
</tr>
<tr>
<td>Luxemburg</td>
<td>The country is not on track to reach its R&amp;D intensity target for 2020, due to a sharp decrease in business R&amp;D intensity</td>
<td>Strengthen the diversification of the economy, including by removing barriers to investment and innovation</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>Public and private R&amp;D spending are relatively low, which limits the growth and potential of the economy</td>
<td>Use fiscal policy to support domestic demand, including investment in research and development</td>
</tr>
<tr>
<td>Spain</td>
<td>Needs to increase its R&amp;D intensity as it remains in the second lowest category of countries as a ‘moderate innovator’, ranking 20\textsuperscript{th} out of 28 in the EU Innovation Scoreboard 2016</td>
<td>Ensure adequate and sustained investment in R&amp;I and strengthen its governance across government levels</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>It fares significantly below the average in terms of openness and excellence of its research system, and also in terms of the innovation output indicators that capture SME’s innovation and while there has been an strong increase in R&amp;D intensity since 2005, this has not being matched by an improvement in the quality of outcomes</td>
<td>Improve the quality of R&amp;D</td>
</tr>
<tr>
<td>France</td>
<td>It ranked 2nd in the EU in 2015 in terms of public funding of business R&amp;D but its intermediate innovation performance raises questions about the efficiency of public support schemes</td>
<td>Simplify and improve the efficiency of public support schemes for innovation.</td>
</tr>
<tr>
<td>Estonia</td>
<td>Needs to improve the relatively low efficiency of public R&amp;D spending, which is linked to a lack of economies of scale and critical mass in research areas</td>
<td>Promote private investment in research, technology and innovation</td>
</tr>
<tr>
<td>Belgium</td>
<td>Needs to improve the proportion of high-growth innovative enterprises, and focus on boosting innovation in SMEs and start-ups</td>
<td>Implement measures to increase digital technologies adoption, and innovation diffusion</td>
</tr>
<tr>
<td>Estonia</td>
<td>Cooperation between sectors remained limited despite the measures taken by the government</td>
<td>Strengthen cooperation between academia and businesses</td>
</tr>
<tr>
<td>France</td>
<td>Cooperation between public research and companies is suboptimal and weighs on the economic output of the innovation system</td>
<td>N/A</td>
</tr>
<tr>
<td>Ireland</td>
<td>To stimulate innovation by SMEs, innovation policies could be rebalanced towards more direct forms of funding</td>
<td>Increase support to SMEs</td>
</tr>
<tr>
<td>Spain</td>
<td>Several factors -e.g. reduced mobility of students and academic staff, lack of incentives to engage with</td>
<td>N/A</td>
</tr>
</tbody>
</table>

\textsuperscript{108} EU Commission, Final Communication from the Commission to the European Parliament, the European Council, the European Central Bank, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank, 2017 European Semester: Country-specific recommendations.
Spending priorities for ESI Funds and programming results 2014-2020

Pre-programming guidance: the health thematic fiche

Member States have many opportunities to use ESI funds to support R&I in health. The Commission’s 2014 guidance ‘Health investments under the ESI funds’109, which aims to target spending towards EU health policy goals as well as the implementation of reforms recommended as part of the European Semester process - outlines a number of key spending areas that are relevant for R&I in health; these are presented in the box below.

**Box 5 Spending priorities to support Research and Innovation in health and the life sciences**

<table>
<thead>
<tr>
<th>spending priorities to support Research and Innovation in health and the life sciences</th>
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<tbody>
<tr>
<td><strong>Thematic Objective 1:</strong> Strengthening research, technological development and innovation</td>
</tr>
<tr>
<td>While health is not explicitly covered in this thematic objective, interventions in this area should contribute to the actions of Member States in innovation in health, health products and services, in those areas in which innovation efforts are concentrated in the national or regional smart specialisation strategies of Member States.</td>
</tr>
<tr>
<td>• Support research in development of new diagnostic tools and treatments for HIV/AIDS, cancer, neurodegenerative diseases such as Alzheimer’s disease, and other dementia, mental disorders and major and chronic diseases, as well as research related to the ageing process and tailored solutions to support the elderly</td>
</tr>
<tr>
<td>• Diagnostic tools and treatments for pandemic influenza, including vaccines.</td>
</tr>
<tr>
<td>• Support for collaborative research in rare diseases, in particular within the framework of the International Rare Diseases Research Consortium (iRDIRC)</td>
</tr>
<tr>
<td>• Support research and related IT infrastructures, including to support health information systems (see also TB 3 on e-health).</td>
</tr>
</tbody>
</table>

| Thematic Objective 3: Enhancing the competitiveness of SMEs, the Agricultural Sector (for the EAFRD) and the Fisheries and Aquaculture Sector (for the EMFF) |
| Interventions under this goal should contribute to SME’s competitiveness in health services and products, including social innovation in priority areas such as active and healthy ageing (see TB5, see also the EIP on Active and Healthy Ageing). |
| • Promote awareness among SME’s on ‘white sector’ opportunities and know-how. |

Programming: the selection of investment priorities/intervention fields and definition of specific objectives and indicators

Strengthening R&I is a high priority for the EU. Accordingly, a wide range of the Investment Priorities listed in the fund-specific regulations110 are potentially relevant for R&I in health. These fall primarily under the Thematic Objectives (TO) 1 and 3, and are typically associated with the ERDF, although ESF can also

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contribute to R&I within all areas falling within its scope. Among the IPs selected by multiple Member States are:

- ERDF 1a: Enhancing research and innovation (R&I) infrastructure and capacities to develop R&I excellence, and promoting centres of competence, in particular those of European interest;
- ERDF 1b: Promoting business investment in R&I, developing links and synergies between enterprises, research and development centres and the higher education sector, in particular promoting investment in product and service development, technology transfer, social innovation, eco-innovation, public service applications, demand stimulation, networking, clusters and open innovation through smart specialisation, and supporting technological and applied research, pilot lines, early product validation actions, advanced manufacturing capabilities and first production, in particular in key enabling technologies and diffusion of general purpose technologies;
- ERDF 2c: Strengthening ICT applications for e-government, e-learning, e-inclusion, e-culture and e-health;
- ERDF 3a: Promoting entrepreneurship, in particular by facilitating the economic exploitation of new ideas and fostering the creation of new firms, including through business incubators;
- ERDF 3b: Developing and implementing new business models for SMEs, in particular with regard to internationalisation;
- ERDF 3c: Supporting the creation and the extension of advanced capacities for product and service development;
- ERDF 3d. Supporting the capacity of SMEs to grow in regional, national and international markets, and to engage in innovation processes.

Of these, only ERDF 2c specifically mentions health, and this was only chosen by four Member States. IP 1b, focusing on ‘promoting business investment in research and innovation’ is the Investment Priority which was most often chosen by Member States for R&I in health (in 18 Member States and 31 Interreg programs), followed by the IP 1a (enhancing research and innovation infrastructure; sixteen Member States and twelve Interreg programs). A full list of the relevant Investment Priorities for R&I in health and the Member States that selected them in the OPs can be found in Annex 1.4. Overall, 22 Member States have included these Investment Priorities in their OPs, while only 6 Member States have not included any IPs relevant for this theme in their OPs (these are: AT, CY, HR, IE, LU, SI, and SK). However, this information should not be taken as an overall trend, given that for most projects about R&I in health (1110 out of 1435), the IPs were not available.

The specific objectives developed by the Member States to guide spending for R&I in health are also broad, and they do not typically refer to the health sector. Some of the investment priorities take a general approach towards strengthening innovation capabilities (e.g. Austria and Czech Republic ‘improving and extending research and innovation capacities’ or Spain ‘strengthening of R & D institutions and creation, consolidation and improvement of scientific and technological infrastructures’), while some focused on strengthening the capacities of the private sector (e.g. Bulgaria ‘increasing the innovation activity of the enterprises’, Finland ‘strengthening the innovation activities of companies’ and Lithuania ‘increasing the intensiveness of research, development and innovation activities in the private sector’), and only Romania directly referenced health (‘increasing capacity in the areas of smart specialization, CDI and health sector’).

There are no common indicator requirements for ESF or ERDF programs that would measure impacts related to R&I in health and the life sciences. There is one required common output indicator relating to health, which specifies the population covered by improved health services; this indicator was only used by Interreg Programs UK-IE Northern Ireland-Ireland-Scotland (‘beneficiaries supported by new cross-border area initiatives for positive health and wellbeing and the prevention of ill health’) and ES-PT

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POCTEP (‘population covered by cross-border initiatives in the fields of employment, training, culture, sport and health). However, several programme-specific indicators developed by different Member States are related to R&I in health and the life sciences. These are often purely output indicators (e.g. Czech Republic ‘professional publications’ and Finland ‘Piloted products and services which have been developed in the innovation platforms’).

The 2014-2020 OPs are high-level enough documents that allow many Member States to support projects targeting the full range of policy goals in the area of health innovation: increasing R&I intensity in countries and regions, strengthening the innovation capabilities of SMEs, supporting the development of new products and processes tackling a priority disease or health condition, and increasing R&I capabilities in various areas of smart specialization, including health and the life sciences.

Projects supporting research and innovation in health and the life sciences

Annex 1.4 contains the results of the mapping of Member States spending on projects classified as supporting research and innovation in health and the life sciences. In order to get a composite picture of what has been funded in this area, it is necessary to look both at the numbers of projects and also at total expenditure. R&I in health and the life sciences counts for 1,708 or around 23% of the total of projects, constituting the third largest theme in terms of number of projects. The total budget of thematic block 4 projects is around EUR 1.8 billion or around 22% of all health projects identified.

Projects in this theme were funded in 20 Member States. Around half of these projects (56%) are in Spain, followed by numerous research and innovation health projects funded in Italy, Portugal, the three Interreg cooperation programmes and Poland. No projects supporting the e-health thematic block were found in Austria, Cyprus, Croatia, Ireland, Luxembourg, Malta, Slovenia and Slovakia. 85 relevant projects are also financed under the three types of Interreg cooperation programmes. Further details are presented in the figure below.

Figure 11 Research and innovation projects per Member State and Interreg programme

Budget information is available for nearly all of the thematic block 4 projects (except for 8 projects). The total budget of all research and innovation projects with budget information is approximately EUR 1.8 billion, while the average project budget is approximately EUR 1 million. The largest spending on research and innovation health projects is by far exhibited by Spain (around EUR 587 million) and the Interreg
programmes (in total around EUR 255 million across the three strands). Hungary follows with spending on research and innovation health projects of around EUR 179 million, followed by Poland (around EUR 129 million) and the UK (approximately EUR 116 million). The figure below shows the total expenditure (both EU funds and any Member State co-financing) for the identified research and innovation projects.

*Figure 12 Total budget of the research and innovation projects per Member State and Interreg programme*

*Based on published data by Member States available for 48% of projects identified under Theme 4.*

The health projects identified under the research and innovation thematic block cover mainly sub-theme 4.3 focused on the innovation of products and processes, also in combinations with some of the other sub-themes. A considerable number of projects are also supporting sub-themes 4.2 on research infrastructure and the conditions for innovation and 4.4 on changing care models. The following table gives a more detailed picture of the sub-themes and combinations addressed by projects supported in the Member States and the Interreg programs.

*Table 10 Sub-themes for Theme 4 on research and innovation in health and life sciences*

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Number of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>T4.1</td>
<td>Clinic-industry collaboration</td>
<td>108</td>
</tr>
<tr>
<td>T4.2</td>
<td>Research infrastructures</td>
<td>166</td>
</tr>
<tr>
<td>T4.3</td>
<td>Innovation of products and processes</td>
<td>1182</td>
</tr>
<tr>
<td>T4.4</td>
<td>Changing care models</td>
<td>199</td>
</tr>
<tr>
<td>T4.5</td>
<td>Research in the area of rare diseases (low prevalence/complex conditions)</td>
<td>40</td>
</tr>
<tr>
<td>T4.6</td>
<td>Human resources</td>
<td>31</td>
</tr>
<tr>
<td>T4.7</td>
<td>Other</td>
<td>31</td>
</tr>
</tbody>
</table>

All projects supported by ESI Funds are also assigned to different intervention fields in accordance with Regulation 215/2014\(^{112}\) and the EU nomenclature of intervention field codes established in it. Where this was indicated by the Member States in the information they published regarding projects funded, we have tracked it per project. The vast majority of projects for which information was available about the intervention fields, were assigned Intervention field 64 “Research and innovation processes in SMEs” (119

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Another 118 projects are assigned to the remaining intervention fields 56-65 (except for IP 59). For Interreg programs this represents a natural way of promoting research and innovation as well as cross-border collaboration in areas of interest and between geographical areas that can benefit from mutual learning, technology transfer and open innovation. This can be especially important for large projects involving multiple partners (including SMEs, large companies, universities, research centres, hospitals and even public organizations). Interreg A projects are the more numerous and have the largest spending budgets, followed by Interreg B and Interreg C.

It is difficult to identify trends in R&I in health and the life sciences across the projects, as the large majority belongs to sub-theme T4.3, which focuses on innovative products and processes that could potentially address any health area. However, some major themes can be found by looking at some of the priority areas for health policy in the EU:

- Many projects supporting the development of tools for diagnosis, treatment and prevention of cancer are present in Interreg A and B, Belgium, Bulgaria, Czech Republic, Estonia, France, Hungary, Italy, Latvia, Lithuania, the Netherlands, Portugal (with a large number of projects), Romania, and the UK, which is not surprising, given the burden of cancer in the EU’s ageing population.
- Projects related to personalised medicine, which mostly but not only focus on cancer/oncology research, were found across projects in Interreg A, Estonia, Romania, and the UK.
- Research and innovation projects related to an ageing population and care for the elderly were found in Interreg A, B, and C, Belgium, France, Hungary, Italy, the Netherlands, Poland, and Romania.
- Projects addressing Anti-Microbial Resistance and the development of new antibiotics to cope with this challenge were only found in Interreg A, Italy, Latvia, the Netherlands and Portugal. This is a more surprising finding, given the importance of the topic and the attention it has received in the EU and worldwide.
- Neuro-degenerative diseases (e.g. Alzheimer, Parkinson, dementia) are addressed by projects found in Interreg A, Germany, Hungary, Italy, Portugal, the Netherlands, and Romania.

Identifying projects which are using new emerging technologies can also help to provide a broad overview of the innovativeness of funded projects and the areas in which these are focusing.

- Projects supporting the use of robots or artificial intelligence tools to contribute to health are found in Interreg A, Belgium, Finland, France, Italy, Poland, Romania.
- 3D printing is used by Interreg A, Interreg B, Czech Republic, Hungary, Italy, Lithuania, and the Netherlands.
- Gene editing is being used in projects in the Netherlands, Genomics in Interreg A, Estonia, Hungary, and the Netherlands.
- Stem cells are the focus of Interreg A, Belgium, Hungary, Italy, Lithuania, and Portugal projects.
- Nanotechnologies are being used by Interreg A, Czech Republic, Italy and Lithuania projects.
- Neurosciences are cited in Interreg A, Germany, Hungary, Italy, Portugal, the Netherlands, and Romania projects.

Finally, in terms of high level innovation policy goals, the following trends are worth noticing:

- Open innovation and collaboration is cited by only a few projects; these are located in Belgium and the Netherlands.
- Collaborations, platforms and networks are cited by projects in Interreg A, B, Belgium, Bulgaria, Finland, France, the Netherlands, Sweden and the UK.
Exemplary projects

What sort of R&I capacity should be built with the help of ESI Funds is a key question that can help identify good practices across the projects. For instance, following the conceptual framework for understanding spatial innovation patterns provided by the ESPON Knowledge, Innovation and Territory report\textsuperscript{113}, regions defined as imitative should focus on certain types of innovations, e.g. on local assessment of innovation products against criteria that maximise the adoption and diffusion potential within local health systems; while smart and creative diversification regions could work on adapting innovation products and guide adoption by sub-national healthcare services; and smart technological applications regions possess the creativity and competencies to develop lower cost alternatives to costly health innovations. While each region has a unique set of innovation capabilities, meaningful partnerships across regions can also help less-developed regions catch-up with innovation leader regions in the short to medium term\textsuperscript{114}.

While the data compiled in this study cannot give a full answer as to whether ESI Funds are contributing to address R&I gaps between Member States and regions, information about R&I projects addressing the health sector can serve to highlight good practices and draw useful lessons. There are many good practices to be found across the projects in the portfolio of 2014-2020 projects funded to date that support R&I in health and the life sciences. These projects have been selected by the ESI Funds for health team based on their interesting or innovative character, policy relevance and potential for replication in other EU countries or regions. An overview of the ten selected projects for R&I in health is provided in Table 4.4 below.

These projects come from a range of Member States and Interreg cross-border programs, and cover a wide range of topics from research addressing particular diseases that have been identified as priorities (e.g. the project ‘Analysis and correlation between the whole genome and brain activity for the diagnosis of Alzheimer’s disease’), to those supporting large collaborative research networks (e.g. the COILED and the REFBIO Projects), which could be helpful to develop innovative solutions in various areas, and those funding the development of particular diagnostic or therapeutic tools (e.g. the PET precursor project).

Consistent with the findings regarding the overall group of ESI funded projects supporting R&I, the 10 exemplary projects reflect a greater emphasis in funding the development of innovative products and processes rather than other areas, such as funding research for rare diseases, or funding human resources. Among the largest projects in terms of budget and scope are the COILED and the REFBIO II projects. COILED is a broad project in the Netherlands, which aims at the creation of a large-scale collaborative and open innovation platform for drug discovery. This is an important area that can directly benefit from public funding, as most private companies are not sufficiently investing in this early stage of drug discovery, which allows the translation of early research into drug candidates suited for clinical studies. The project focuses on the phenomenon of “trained immunity”, for which the beneficiaries have a comparative advantage in terms of R&I, and which plays a key role in diseases such as sepsis, cancer, atherosclerosis, Parkinson’s disease and rheumatism. Another broad collaborative project is REFBIO II, which is the continuation of a large Interreg A collaboration between Spain, France and Andorra. REFBIO also aims at creating a large network to foster collaborative research in different health areas (oncology, haematology, cell therapy, neuroscience, epidemiology, public health, cardiovascular health, infectious disease and clinical trials). The project also aims at transferring the results of research into innovations that can be further developed, and to support SMEs clusters. Both projects involve multiple beneficiaries, and both support the collaboration between different entities involved in R&I, including universities, research centres, hospitals, and SMEs, a central theme in various Country Specific Recommendations, IPs and OPs.

\textsuperscript{113} ESPON (2013) Knowledge, Innovation, Territory (KIT). Applied research report, 13 January 2013

Two projects tackle the important issue of antimicrobial resistance (e.g. the health-i-care and the i-4-1 Health). Both are Interreg A projects, which involve large cross-border collaborations in terms of budget, and which pool significant resources and capabilities to find innovative solutions in this priority but difficult area from the point of view of R&I.

An interesting project addresses the innovative field of personalized medicine, which aims at developing the right medicines for patients, which could enhance their efficacy and diminish their side effects. The ITM2P project focuses on developing innovative strategies in personalized medicine to tackle comorbidities linked to ageing, which is another priority area for the EU. Another innovative Interreg A project is SAIAD, which involves the use of cutting-edge technologies (e.g. 3D printing and artificial intelligence) to help surgeons perform more accurate surgeries in children with kidney tumours. Two other projects using different technologies also aim at promoting healthy ageing, the AgeWell project in Romania, which uses innovative approaches and assistive robotics for healthy ageing, and the INOVA4Health project from Portugal, which aims at developing therapies to promote healthy ageing and in targeting chronic diseases.

Finally, two other more specific projects also aim at developing better diagnostic tools for neurodegenerative diseases such as Alzheimer or Parkinson (e.g. the Interreg A ‘PET precursor’ project, which involves a cross-border collaboration between Estonia and Latvia, and the Interreg A project for the diagnosis of Alzheimer’s disease, which also involves a cross-border collaboration between France and Spain). Both projects focus on an important need for new and early diagnostic tools for neurodegenerative diseases and cancer.
Table 11: Exemplary projects for Theme 4 on research and innovation in health and life sciences

<table>
<thead>
<tr>
<th>Project title</th>
<th>Member State</th>
<th>Beneficiary(ies)</th>
<th>Budget € Co-finance % Fund Dates</th>
<th>Brief description of project activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. “Development of Positron Emission Tomography (PET) precursor”</td>
<td>Interreg A Estonia-Latvia</td>
<td>Pharmidea Ltd, TBD-Biodiscovery Ltd</td>
<td>EUR 580,886.74 83 % ERDF 2017-2019</td>
<td>This Project aims at developing and manufacturing a product to be used along with Positron emission tomography-computer tomography (PET-CT), which is an important diagnostic tool for cancer, Alzheimer or Parkinson detection. The outcome of the Project is a final dosage form of the PET-product with all the documentation package, necessary for its implementation in nuclear medicine centres and hospitals and ready to enter into the market.</td>
</tr>
<tr>
<td>2. REFBIO II</td>
<td>Interreg V-A Spain-France-Andorra (POCTEFA)</td>
<td>Navarrabiomed Miguel Servet Foundation, Association Biocruces Health Research Institute, Association Biodonostia Institute, Basque Foundation for Health Innovation and Research, Biomedical Research Centre, Centre Hospitalier Universitaire de Toulouse, Cluster Osasuna, Aragon Institute of Health Science, Université Paul Sabatier-Toulouse</td>
<td>EUR 2,124,931 65% ERDF 2016-2018</td>
<td>This project supports a research network to foster collaborative research in different health areas (oncology, haematology, cell therapy, neuroscience, epidemiology, public health, cardiovascular health, infectious disease and clinical trials). The project also aims at transferring the results of research into innovations that can be developed alongside with SME clusters.</td>
</tr>
<tr>
<td>3. Automatic segmentation of kidney tumours in children through Artificial Intelligence SAIAD</td>
<td>INTERREG V-A France-Switzerland</td>
<td>Université de Franche-Comté, Ecole Polytechnique Fédérale de Lausanne; CFI (Switzerland); University Hospital of Besançon; IDO In (France)</td>
<td>EUR 1,281,939 41 % ERDF 2016-2019</td>
<td>This project supports the development of an artificial intelligence (AI) for the 3D segmentation of kidney tumours in children, which would help surgeons perform surgery in a more accurate way.</td>
</tr>
<tr>
<td>4. Center of Open Innovation for Lead Discovery COILED</td>
<td>Netherlands</td>
<td>Radboud University Nijmegen, Pivot Park Screening Centre, Inntrest Consultancy, BioAxis Research, Pansynt, Radboudumc</td>
<td>€4,382.233 N/A ERDF 2016-2020</td>
<td>The project supports the creation of a collaborative and open innovation drug discovery platform to translate early research into drug candidates suited for clinical studies in a timely manner. The project focuses on the phenomenon of “trained immunity”, which plays a role in diseases such as sepsis, cancer, atherosclerosis, Parkinson’s disease and rheumatism.</td>
</tr>
<tr>
<td>5. health-i-care</td>
<td>Interreg A Germany Netherlands</td>
<td>Universitair Medisch Centrum Groningen (UMCG)</td>
<td>1,793,983 50% ERDF 2016-2020</td>
<td>Funds the development of innovative products and technologies, which will protect the population against infections and cope with antibiotic resistance, including innovative tools in the areas of diagnostics, therapy, cleaning, medical technologies, information-oriented and persuasive communication technologies.</td>
</tr>
<tr>
<td>Project title</td>
<td>Member State</td>
<td>Beneficiary(ies)</td>
<td>Budget €</td>
<td>Co-finance %</td>
</tr>
<tr>
<td>---------------</td>
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<tr>
<td>6. i-4-1Health</td>
<td>Interreg A Belgium Netherlands</td>
<td>Stichting Amphia</td>
<td>EUR 8,483,689 40%</td>
<td>ERDF 2017-2019</td>
</tr>
<tr>
<td>7. Analysis and correlation between the whole genome and brain activity for the diagnosis of Alzheimer’s disease</td>
<td>Interreg A Spain Portugal</td>
<td>University of Valladolid</td>
<td>EUR 407,553 N/A</td>
<td>ERDF 2015-2019</td>
</tr>
<tr>
<td>8. iNOVA4Health- Translational Medicine Program</td>
<td>Portugal</td>
<td>NGOs, multiple</td>
<td>4,075,656; ERDF</td>
<td>iNOVA4Health is a translational medicine programme organizing the efforts of biomedical researchers involved in i) biological understanding of disease, lead compounds and biopharmaceuticals pre-discovery, ii) technological scientists involved in preclinical development, and iii) clinicians involved in early clinical and first-in-man clinical trials from institutions within NOVA University of Lisbon.</td>
</tr>
<tr>
<td>9. AgeWell- Innovative Approaches Regarding Rehabilitation and Assistive Robotics for Healthy Ageing</td>
<td>Rumania</td>
<td>University, Research Center</td>
<td>1,739,963; ERDF; 2016-2020</td>
<td>AgeWell intends to increase and exploit the complementary competences of medical robotics specialists and physicians with an additional scientific contribution of a foreign specialist in order to develop a pole of competence in rehabilitation within the Technical University of Cluj-Napoca, which will deliver European relevant medical solutions, ready for technological transfer, which answer the current challenges and threats in healthy ageing, lifestyle and public health.</td>
</tr>
<tr>
<td>10. Fast Breast Check</td>
<td>Italy</td>
<td>NOVAURA Srl (coordinator), Veespo Srl, Politecnico di Milano</td>
<td>EUR 1,126,455 75%</td>
<td>ERDF 2017-2019</td>
</tr>
</tbody>
</table>
Conclusions

Investing in Research and Innovation is a key policy objective for the EU, as highlighted in many key policy documents, including the Europe 2020 strategy and its Innovation Union flagship. Overall, both the number of projects for Theme 4, and their approximate budget reflect this priority. Moreover, actual spending figures could also be much higher, given the large number of projects for which the budget was not available (budget information was available only for 48% of the projects under this theme), and also due to the fact that the spending period is still open.

Projects addressing R&I in health and the life sciences address a wide variety of health issues. Overall, there is a focus on the development of innovative products and processes in various areas considered as EU health policy priorities (e.g. addressing cross-border threats such as emerging antimicrobial resistance). As evidenced by the 10 exemplary projects, ESI Funds have been allocated to projects contributing to the topic of healthy ageing, the development of innovative solutions to fight health challenges such as antimicrobial resistance (e.g. the i-4-1 health in Belgium and the Netherlands), and the quest for diagnostic and therapeutic solutions for neurodegenerative and chronic diseases increasingly affecting EU’s ageing population (e.g. the SAIAD and INOVA4health projects).

While EU’s innovation policy has strongly emphasised open and collaborative innovation, this priority has received relatively less attention across the projects of this theme. That said, two of the 10 exemplary projects serve to highlight the use of ESI Funds to promote open and collaborative R&I (e.g. the COILED and REFBIO II projects).

A key element of ESI Funded projects identified within this theme is the development of collaborations between different research organisations, public authorities, SMEs and other relevant actors. With the support of ESI Funds, these entities are collaborating to develop innovative solutions for healthcare. In addition to inter-sectoral collaboration, the importance, both in terms of number but especially in terms of average budget, of the Interreg projects in R&I in health, also serves to emphasize the importance of collaborative and cross-border research in fostering positive knowledge spillovers (e.g. the i-4-1 health and the health-i-care projects). These projects, as well as the collaborations they promote, can help to address the gaps between Member States and regions, which is the one of the ultimate goals of investing ESI Funds in R&I.
Theme 5: Active and healthy ageing, healthy workforce, health promotion and disease prevention

Background and policy context

People across Europe are living longer than ever, but many of the life-years that people are gaining are not being spent in good health, particularly amongst lower socio-economic groups. The ‘Health at a Glance: Europe 2016’ report estimated that the premature deaths of 550,000 working age people from chronic diseases (including heart attacks, strokes, diabetes and cancer) cost EU economies €115bn or 0.8% of GDP annually. In addition, the burden of ill-health on social benefit expenditures is huge, with 1.7% of GDP spent on disability and paid sick leave each year on average in EU countries, more than what is spent on unemployment benefits. The total costs are even higher as these figures do not include the additional loss in terms of lower employment rates and productivity of people living with chronic health problems.

Health promotion and disease prevention relate to interventions that aim to foster healthy lifestyle of the population and prevent negative impacts of various risk factors including (chronic) diseases such as obesity, type two diabetes, cardiovascular diseases and cancer but also addictions to such substances as alcohol and nicotine. According to the European Commission’s Staff Working Document¹¹⁵, health promotion and disease prevention are key areas of investment. Most Member States seem to make insufficient use of opportunities for substantial gains in disease prevention and health promotion through mainstreaming them in other policies. Furthermore, health promotion and disease prevention can increase cost-effectiveness of health care by reducing (curative) costs.

Ageing has been identified in many EU policy documents as one of the most pressing challenges affecting all EU Member States. While people on average live longer, quality of life and disability-free life years have not grown equally. Activities supported under the sub-theme ‘Active and healthy ageing’ are designed to empower older people to lead a healthy lifestyle and to stay healthy longer. Many of these activities improve the employability of people aged 50 or over, contributing to the target of Europe 2020 strategy aiming at higher employment.

Workplace health and safety relates to the promotion of safer and healthier conditions in the workplace, which improves productivity and competitiveness and has a positive impact on the sustainability of the social security systems. Prevention of diseases affecting labour productivity allows workers to lead longer, better-quality lives - in this way, this sub-theme is intertwined with the previous one. Many EU initiatives support implementation of healthy workforce related policies across the Member States, in particular through actions supervised by the European Agency for Health and Safety at Work (EU-OSHA) and the European Foundation for the Improvement of Living and Working Conditions.

Given the implications for productivity and employment as well as for the cost-effectiveness of health care spending and social security policy, active and healthy ageing, healthy workforce and health promotion measures have featured in many of the country reports analysing Member States’ efforts to implement recommendations stemming from the European Semester process.

Active and Healthy Ageing

The demographic change in the EU is uncontested and is leading to rising healthcare spending to address the needs of an ageing population\(^{116}\). According to the European Commission, ageing is ‘one of the greatest social and economic challenges of the 21st century for European societies. (...) By 2025 more than 20% of Europeans will be 65 or over, with a particularly rapid increase in numbers of over-80s\(^{117}\). Active and healthy ageing (AHA) relates to ‘activities [which] are designed to help the elderly people to lead a healthy lifestyle’ \(^{118}\). Thus, health promotion and disease prevention play an important role in healthy ageing as well as improving the employability of older people and addressing their growing isolation.

In 2011, the European Commission set up the European Innovation Partnership on Active and Healthy Ageing (EIP-AHA)\(^{119}\), which is a platform for communication and information for all actors involved in active and healthy ageing through Europe. Its aim is to foster innovation in Europe to reach the overarching target of increasing the average healthy lifespan of EU citizens by 2 years by the year 2020. This indicator combines life expectancy with disability data derived from EU mortality tables and information from surveys on self-perceived disability\(^{120}\). The EIP-AHA has identified six key areas to work on: adherence to prescription, falls prevention, functional decline and frailty, integrated care, independent living solutions and age-friendly environments and pursues the often-cited ‘Triple Win for Europe’:

- Improving the health and quality of life of Europeans with a focus on older people;
- Supporting the long-term sustainability and efficiency of health and social care systems;
- Enhancing the competitiveness of EU industry through business and expansion in new markets.

The Commission also released a two-page factsheet\(^{121}\) presenting the main investment objectives of the ESIF related to health, as well as the scope of investments and examples of activities, including the TB5.1 sub-theme of AHA.

Workforce Health and Safety

The area of health and safety at work is one where the EU has notably had the biggest impact, based on a solid legal framework (1989)\(^{122}\). The EU’s Occupational Safety and Health (OSH) Strategic Framework 2014-2020\(^{123}\) helps to better protect the 217 million workers across the EU from work-related accidents and diseases. The Framework aims at ensuring that the EU continues to play a leading role in the promotion of high standards for working conditions both within Europe and internationally and is in line with the Europe 2020 Strategy. It identifies three major OSH challenges:

- to improve implementation of existing health and safety rules, in particular by enhancing the capacity of micro and small enterprises to put in place effective and efficient risk prevention strategies;

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\(^{119}\) European Innovation Partnership website: [https://ec.europa.eu/eip/ageing/home_en](https://ec.europa.eu/eip/ageing/home_en)

\(^{120}\) European Commission, Health indicators, [https://ec.europa.eu/health/indicators/healthy_life_years_en](https://ec.europa.eu/health/indicators/healthy_life_years_en)


• to improve the prevention of work-related diseases by tackling new and emerging risks without neglecting existing risks;
• to take account of the ageing of the EU's workforce.

The Framework proposes to address these challenges under seven key strategic objectives, e.g. consolidating national health and safety strategies through, for example, policy coordination and mutual learning; addressing the ageing of the European workforce and improving prevention of work-related diseases to tackle existing and new risks such as nanomaterials, green technology and biotechnologies; improving statistical data collection to have better evidence and developing monitoring tools; and reinforcing coordination with international organisations (such as the International Labour Organisation (ILO), the World Health Organisation (WHO) and the Organisation for Economic Co-operation and Development (OECD) and partners to contribute to reducing work accidents and occupational diseases and to improving working conditions worldwide. Particularly, the ESF has been identified as a key instrument for the Framework’s implementation.

The aims of the Strategic Framework are threefold: (1) to better protect workers against work-related cancer; (2) to help businesses, in particular SMEs and micro-enterprises, in their efforts to comply with the existing legislative framework; and (3) to concentrate more on results and less on paperwork. A clear plan sets out key actions, such as limiting exposure to seven cancer-causing chemicals and issuing a campaign.

The Commission also works with the European Agency for Health and Safety at Work(EU-OSHA) and the European Foundation for the Improvement of Living and Working Conditions(Eurofund) to disseminate information, offer guidance and promote healthy working environments - particularly in small businesses. In particular, EU-OSHA is leading the work on campaigns. In 2016-17, the key message was ‘Safe and healthy working conditions throughout the whole working life are good for workers, business and society as a whole.’ It has four key objectives:

• Promoting sustainable work and healthy ageing from the start of the working life;
• Preventing health problems throughout the working life;
• Providing ways for employers and workers to manage occupational safety and health in the context of an ageing workforce;
• Encouraging the exchange of information and good practice.

Furthermore, between 2013 and 2015, EU-OSHA carried out the project ‘Safer and healthier work at any age - occupational safety and health (OSH) in the context of an ageing workforce’, by delegation of the European Commission and initiated and financed by the European Parliament. The aim was to investigate ways of improving health and safety at work considering the challenges of an ageing workforce and to assist policy development in this area. Key results of the project are available in an ‘Interactive Visualisation Tool’, including data on demographics, employment, working conditions, and health, as well as examples of OSH and related policies across Europe addressing the challenges of an ageing workforce.

Health Promotion and Disease Prevention
Health promotion and disease prevention are concepts that ‘address changes in the lifestyle of the population, in response to the generally stressful and sedentary lifestyle of our time with a lack of exercise, which translates into a surge in diseases such as obesity, type two diabetes, cardiovascular diseases and cancer’129. Preventative measures across the life course, such as smoking bans, tackling problem drinking, increasing physical activity as well as screening and vaccination programmes, can significantly reduce the burden of morbidity and mortality of non-communicable diseases in Europe. The aim is to increase the proportion of healthy population and thus decrease the costs for healthcare treatment. Many studies point towards the cost-effectiveness of health promotion in addressing the burden of chronic diseases by tackling the most common and avoidable risk factors, like smoking, physical inactivity, alcohol consumption and poor diet130.

However, the recently published ‘State of Health in the EU: Companion Report 2017’131 reiterates that only around 3% of national health budgets are spent on prevention measures and calls for a shift towards more health promotion and disease prevention, driven by the UN’s Sustainable Development Goal to reduce premature mortality from non-communicable diseases by a third until 2030. The EC offers support to Member States’ action through various tools and strategies, such as the High-Level Group on Nutrition and Physical Activity132, the EU Platform for Action on Diet, Physical Activity and Health133 and the EU Action Plan on Childhood Obesity134. In terms of legislative action, the Tobacco Products Directive135 came into force in 2014 and aims to improve the functioning of the internal market for tobacco and related products, while ensuring a high level of health protection for European citizens.

The Health programme EU’s Multiannual Financial Framework 2014-2020136, which is part of the EU’s Multiannual Financial Framework aims to strengthen the link between economic growth and a healthy population and is geared towards measures in line with the Europe 2020 objectives. The programme has four objectives, including ‘to promote health, prevent diseases, and foster supportive environments for healthy lifestyle’, and ‘protect Union citizens from serious cross-border health threats’. The programme addresses the challenges in these areas by fostering best practice in health promotion and cost-effective prevention targeting key health determinants namely smoking, abuse of alcohol and obesity. This means identifying, disseminating and promoting up-take of validated best practices for cost-effective prevention measures.

The Reflection Process (2013)137, which followed the Council Conclusions on ‘Innovative approaches for chronic diseases in public health and healthcare systems’ of 2011138, stated that ‘Member States should therefore tackle social and health risks throughout people’s lives, taking particular account of the benefits of early disease prevention and health promotion as well as care, ensuring universal access to high quality

133 European Commission, EU platform for action on diet, physical activity and health, https://ec.europa.eu/health/nutrition_physical_activity/platform_en
healthcare services, and modernising health care systems to improve their cost-effectiveness, accessibility and sustainability’.

The EC’s Staff Working Document ‘Investing in Health’ (2013)\textsuperscript{139} highlighted that health is a value in itself and must be considered a growth-friendly investment. It formed part of the influential Social Investment Package for Growth and Cohesion\textsuperscript{140} and shows how investing in health contributes to the Europe 2020 objectives. Health promotion and disease prevention as well as healthy ageing are regarded as key areas of investment. In particular, ‘focusing on disease prevention can reduce high long-term treatment costs and improve health outcomes by avoiding tens of thousands of premature deaths and chronic diseases’. The report criticises that ‘most Member States do not use the opportunities for substantial gains in prevention and health promotion, particularly through the health-in-all-policies approach, which aims to influence the environmental, economic and social determinants of health’\textsuperscript{141}.

In recent times, the question of cost-effectiveness is often raised in regard to health promotion and disease prevention. There is considerable evidence that (curative) costs can be reduced through investment in community-based prevention and health promotion programmes. The European Observatory on Health Systems and Policies addressed this in 2015 and published the book Promoting Health, Preventing Disease - The Economic Case \textsuperscript{142}. It provides comprehensive evidence for the cost-effectiveness of promotion/prevention interventions addressing the main risk factors. Furthermore, the authors show ‘that many different market failures create a compelling economic rationale for government intervention in health promotion and disease prevention, as a way of improving social welfare’\textsuperscript{143}. They make the case for multi-sectoral action involving actors outside the health sector and adequate implementation and monitoring practices.

The demographic changes, technological advances and increased debt in most countries are putting strong and growing fiscal pressures on curative healthcare and systems in all EU Member States. In October 2016, DG Economic and Financial Affairs (ECFIN) and the Economic Policy Committee (Ageing Working Group, consisting of Member State representatives) set out challenges and policy options for healthcare and long-term care towards fiscally sustainable access to good quality services for all\textsuperscript{144}. Most importantly, they note that health promotion does not need to come at a higher cost and interventions for non-communicable diseases can deliver significant public health impacts in an easily implementable and cost-effective way with high effectiveness. Examples include tax increases, bans on advertising and promotion, restricting access to risk factors and public awareness campaigns, counselling and screening. Similar and so-called “best buys” were identified by WHO\textsuperscript{145}. Key to successful implementation of those policy measures, however, is the political will of policymakers at the responsible governance levels.

There is a wealth of knowledge and potential available in relation to health promotion and disease prevention. Identification of good practices has become one of the most employed tools in projects funded by the EU. Various good practice databases are available (e.g. CHRODIS platform, EIP-AHA,

\begin{itemize}
  \item \textsuperscript{139} Commission Staff Working Document: Investing in Health, SWD 2013 43 final, \url{https://ec.europa.eu/health/policies/policy_en}.
  \item \textsuperscript{140} European Commission, Employment, Social Affairs and Inclusion, \url{http://ec.europa.eu/social/main.jsp?catId=1044&langId=en&newsId=1807&moreDocuments=yes&tableName=news_table&dossierId=44}.\textsuperscript{\textsuperscript{\textsuperscript{\textsuperscript{\textsuperscript{\textsuperscript{xxi}}}}}}
  \item \textsuperscript{141} Ibid, p. 14 and p. 15.
  \item \textsuperscript{142} ‘Mc Daid, D, Sassi, F., Merkur, S., ‘Promoting Health, Preventing Disease. The economic case’, \url{http://www.euro.who.int/_data/assets/pdf_file/0006/283695/Promoting-Health-Preventing-Disease-Economic-Case.pdf?ua=1}
  \item \textsuperscript{143} Ibid, p. xx1
\end{itemize}
www.healthyageing.eu and www.healthinequalities.eu) for stakeholders to search for what works in other countries and settings.

The Joint Action CHRODIS+ started in September 2017 and will run for three years. While its predecessor JA-CHRODIS was designed to exploit the potential of countries in the area of chronic disease good practices by facilitating the identification and (theoretical) exchange of those related to health promotion and disease (primary) prevention, multimorbidity and type-2 diabetes, CHRODIS+ seeks to transfer and implement these across countries, with clear EU added value. Additionally, JA-CHRODIS produced an overview report of health promotion and primary prevention landscapes in Europe. It found significant differences in systems and structures across partner countries, some of these differences include evaluation, monitoring, research and capacity and capacity development. The overview shows that there is a strong need for consistent investment in health promotion and primary prevention in order to reduce the burden of chronic diseases and make health systems more sustainable.

The recurring theme of underinvestment in health promotion and disease prevention remains a key challenge for this area. As stated above, in EU Member States, an average of only 3% of healthcare budgets is spent on these areas, compared to 97% for curative care. The problem of allocation of funding towards health promotion and disease prevention is also pointed out by the Expert Panel on ‘Effective Ways of Investing in Health’ in their advice to the European Commission on access to health services in the EU. In 2016, the European Commission has set up the Steering Group on Promotion and Prevention, which brings together Member State representatives to identify and discuss good practices. The Group’s objective is to provide the Commission with advice on investments and priorities for annual work plans under the Health Programme, ensure the coordination of actions by groups working in numerous sectors (e.g. cancer, mental health and rare diseases), and provide a platform for decision makers from national health authorities to decide on implementing actions with the EU financial support.

Cross-cutting to all three sub-themes (i.e. healthy ageing, health and safety of the workforce, and health promotion and disease prevention) are the social determinants of health. Both health equity and health promotion are greatly linked to the social determinants of health. Through the interlinkages and obvious connections, practices addressing one issue often address the other issue as well - a double win so to speak. Moving forward, it will be important to increase awareness about this, which will warrant not only cost-effectiveness but also an increased impact.

Structural reforms at the Member State level: the EU semester process

The European Semester process supports Member States in achieving the goals of the Europe 2020 strategy. Interventions planned under the Theme 5 support primarily the Europe 2020 objectives related to inclusive growth, territorial and social cohesion and employment. While sub-theme 5.1 focuses on better integration of older workers in the labour market, life-long learning and preventing social isolation of the elderly, sub-Theme 5.2 offers opportunities for people with disabilities or chronic diseases to better integrate in the labour market, and sub-Theme 5.3 provides means for early detection and prevention of diseases which may have a negative impact on employability and productivity.

The Annual Growth Survey (AGS) for 2017 noted that ageing puts pressure on the financial sustainability and adequacy of social protection systems. Education and life-long learning are needed to diminish the gap between high-skilled and low-skilled labour force. The AGS pointed out the need to provide adequate care for dependents, in particular the elderly and children, to decrease care obligations of those of working

The AGS for 2018 furthermore stressed the need to implement policy actions enabling people to stay healthy for longer and ensuring timely access to both curative and preventive healthcare of good quality. Lifelong learning, disease prevention and health promotion activities may be a part of the structural reforms aimed at improving labour markets and social policies, as underlined in the AGS for 2018. A healthier workforce will contribute to increasing labour productivity and supporting wage growth. In recent years (2015-2017) a number of issues relating to active and healthy aging, healthy workforce and health promotion have been identified in the 2017 country reports:

- The relatively low employment rates of older workers (aged 50-64) was identified as an issue in nine Member States (AT, BE, LT, LU, IT, NL, PL, RO, SI).
- The need for vocational training and life-long learning, especially concerning the older population was noted in seven Member States (DE, DK, ES, HU, MT, PL, SI).
- Problems with ensuring adequate long-term care for older people, coordination of social and health care and/or problems with providing sufficient support schemes for working people with dependent relatives were noted in six Member States (BG, LU, NL, PL, SK, UK).
- High preventable mortality which affects labour force was noted in six Member States (EE, HU, LV, PL, PT, RO).
- Insufficient health promotion and disease prevention was mentioned as an issue in six Member States (EE, IE, LT, LV, PT, UK).

In 2017, the Country-Specific Recommendations (CSRs) for ten Member States - AT, BE, BG, FI, CR, LT, LV, LU, SI, and SK - included recommendations relevant to active and healthy ageing, workplace health and safety and health promotion, as detailed in the table below. Most recommendations related to active and healthy ageing, and only a few of them actually proposed measures that could lead to direct health investments - many indirect investments in other areas such as employment and training can lead to better health outcomes but are not covered by this study. Only one Member State (Lithuania) received a recommendation directly addressing health promotion; no CSRs were formulated with respect to workplace health and safety although the recommendations concerning active and healthy ageing can also have an impact in this category as well.

<table>
<thead>
<tr>
<th>Member State</th>
<th>Recommendation</th>
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<tbody>
<tr>
<td>Active and healthy ageing</td>
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</tr>
<tr>
<td>Austria</td>
<td>CSR 2 (2016&amp;2015): Strengthen measures to increase the labour market participation of older workers and women including by improving the provision of childcare and long-term care services. Take steps to improve the educational achievement of disadvantaged young people.</td>
</tr>
<tr>
<td>Belgium</td>
<td>CSR3 (2015&amp;2016): Improve the functioning of the labour market by reducing financial disincentives to work, increasing labour market access for specific target groups and addressing skills shortages and mismatches.</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>CSR3 (2015&amp;2016): Develop an integrated approach for groups at the margin of the labour market, in particular older workers and young people not in employment, education or training.</td>
</tr>
<tr>
<td>Finland</td>
<td>CSR 3 (2015&amp;2016): Pursue efforts to improve the employability of young people, older workers and the long-term unemployed, focusing particularly on developing job-relevant skills.</td>
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<tr>
<th>Member State</th>
<th>Recommendation</th>
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<tbody>
<tr>
<td>Croatia</td>
<td>CSR 2 (2016): Discourage early retirement by raising penalties for early exits. Improve the adequacy and efficiency of pension spending by tightening the definition of arduous and hazardous professions. Tackle the fiscal risks in healthcare.</td>
</tr>
<tr>
<td>Lithuania</td>
<td>CSR 2 (2017): Strengthen investment in human capital and address skills shortages, by improving the labour market relevance of education, raising the quality of teaching and adult learning. Reinforce the coverage and effectiveness of active labour market policies. Strengthen the role of social dialogue mechanisms.</td>
</tr>
<tr>
<td>Latvia</td>
<td>CSR 2 (2017): Improve the adequacy of social assistance benefits and step up measures supporting recipients in finding and retaining work, including through increased coverage of activation measures. Speed up the curricula reform in vocational education, establish – with the involvement of social partners – a regulatory framework for work-based learning and increase their offer. Improve the accessibility, quality and cost-effectiveness of the healthcare system.</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>CSR 1 (2017): Ensure the long-term sustainability of public pensions by increasing the effective retirement age, by limiting early retirement and increasing incentives to work longer, and by aligning the statutory retirement age to changes in life expectancy</td>
</tr>
<tr>
<td>Slovenia</td>
<td>CSR 2 (2017): In consultation with social partners, increase the employability of low-skilled and older workers, including through targeted lifelong learning and activation measures</td>
</tr>
<tr>
<td>Slovakia</td>
<td>CSR 2 (2017): Take additional measures to address long term unemployment by improving activation measures, second chance education and introducing high-quality training tailored to individuals’ needs. Improve the incentives for women to remain in or return to employment by improving the provision of childcare facilities.</td>
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</table>

**Workplace health and safety**

<table>
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<tr>
<th>Member State</th>
<th>Recommendation</th>
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<tbody>
<tr>
<td>Lithuania</td>
<td>CSR 2 (2017) Improve the performance of the healthcare system by strengthening outpatient care, disease prevention and health promotion. Improve the coverage and adequacy of unemployment benefits and social assistance.</td>
</tr>
</tbody>
</table>

In the 2017 European Semester process, the European Commission noted that support is needed for a more active older population. In many countries employment rates of older workers remain low. Increasing the rate of older people involved in the labour market is crucial to ensuring that the social protection systems are sustainable and adequate. Remaining active and healthy contributes not only to a higher employment rate of the elderly but also to their well-being. Therefore, the Commission has proposed a number of recommendations in these areas (see the table above). The Commission observed that ‘policy actions are needed to enable people to stay healthy for longer, by making health systems and long-term care more cost-effective and ensuring timely access to affordable preventive and curative healthcare of good quality’. There are many investments planned under the Structural Funds which are in line with the CSRs and support these priorities.

**Spending priorities for ESI Funds and programming results 2014-2020**

Investments made under the ESI Funds should support the implementation of the Country Specific Recommendations and should also be in line with the Commission’s guidance and spending priorities.

**Programming guidance: the health thematic fiche**

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151 Ibid
The European Commission’s 2013 Staff Working Document on *Investing in Health*, which concerns investments to be supported under the ESF stresses that investing in people’s health may be seen as an investment in human capital. ESF-supported interventions aiming at disease prevention and health promotion as well as those targeting life-long learning not only improve the health of the population in general but they also reinforce employability. They create a bridge between active employment policies and health policy, helping to secure adequate livelihoods and contributing to economic growth. The document notes that the potential benefits from health investments through increased population employability are currently not understood well enough. The current cost of occupational accidents and work-related diseases amounts to between 2.6-3.8% of EU GDP. Reducing the workers’ exposure to risk factors may increase productivity and limit the cost of work-related accidents and ill health.

With the goal of promoting investments that support structural reforms in the health sector, in 2014 the European Commission published guidance on health investments under the ESI Funds for the 2014-2020 period. This guidance outlines spending priorities - the Thematic Objectives - in the ESI Funds that could support investments in health sector and identifies specific types of investments that could be made under these priorities. The spending priorities relevant for Theme 5 are presented in the box below.

**Box 6 Spending priorities to support Theme 5**

<table>
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<tr>
<th>Spending priorities to support Theme 5</th>
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<tr>
<td><strong>Thematic Objective 8: Promoting employment and supporting labour mobility</strong></td>
</tr>
<tr>
<td>• Active and Healthy Ageing</td>
</tr>
<tr>
<td>o Promote age-friendly environments to enable older workers to remain at work for longer, and healthier, and utilise the advantages of the elderly workforce.</td>
</tr>
<tr>
<td>o Strengthen prevention, screening and early diagnosis, including of functional decline, both physical and cognitive, and support measures for the active ageing and independent living.</td>
</tr>
<tr>
<td>• Health and human capital</td>
</tr>
<tr>
<td>o Support comprehensive national strategies or action plans to promote health throughout people's lifespan and increase awareness on major lifestyle-related health determinants, addressing in particular priority groups such as children, young people, and people in low socio-economic groups.</td>
</tr>
<tr>
<td>o Improve people's exercise and nutrition patterns, and reduce use/harm of tobacco and alcohol consumption.</td>
</tr>
<tr>
<td>o Strengthen and support primary and secondary prevention to reduce the development and onset of major preventable chronic diseases, including cardiovascular diseases, diabetes or respiratory diseases.</td>
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<tr>
<td>o Engage community and consumer organizations, schools, stakeholders, industry actors, media (incl. targeted campaigns), and health professionals at primary care, sport and healthcare facilities to address relevant risk factors (e.g. tobacco consumption) in an effort for healthier lifestyles.</td>
</tr>
<tr>
<td>• Health at the workplace</td>
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<tr>
<td>o Support programmes to ensure/improve health and safety at workplace.</td>
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<tr>
<td>o Support actions by employers and employees to promote a healthy environment and mental well-being at work.</td>
</tr>
<tr>
<td>o Support the recruitment and return to work of people with a (chronic or rare) disease, disability or mental health disorder, for example through development of public programmes providing tax reductions for these groups’ wages or organizing professional training stages for these groups at no or reduced cost for the employer.</td>
</tr>
<tr>
<td>o Tackle health determinants of occupational/environmental causes (e.g. indoor -including smoke-free- and outdoor air quality, exposure to polluted, carcinogenic and toxic substances) which are linked to diseases including cancer.</td>
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**Thematic Objective 9: Promoting employment and supporting labour mobility**

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153 European Commission, Draft thematic guidance fiche for desk officers - Health, Version 2, 10 March 2014
### Spending priorities to support Theme 5

- **Under this goal, two priority areas included under the label ‘Transition from hospital-based care to community-based care are especially relevant for the Theme 5:**
  - Promote innovative integration of care, based on improved communication and coordination, across the levels of health care (primary, specialist, hospital) and across health, social and community/home-care systems.
  - Promote community-based mental, rehabilitation and long-term care (de-institutionalization).

### Thematic Objective 10: Investing in education, skills and lifelong learning

- **Under this goal, protocols should be developed and professional education and training programmes should be devised for health professionals and other healthcare workers to include, among other, the following aspects:**
  - Specificities in relation to alcohol, tobacco, nutrition and physical activity and related risk factors, and on how to provide treatment to combat addictions;
  - Specificities in relation to old age and ageing (e.g. comprehensive case management, multimorbidity, polypharmacy);
  - Specificities in HIV/AIDS, cancer, neurodegenerative diseases such as Alzheimer’s disease, mental disorders, and other major and chronic diseases.

### Thematic Objective 11: Enhancing institutional capacity and ensuring an efficient public administration

- **Under this goal, interventions to be financed in the area of health should contribute to Member States’ actions towards EU policy goals to enhance cross-border cooperation and in support of institutional and management capacities of health administration and stakeholders. For major and chronic diseases including Alzheimer’s disease and other dementia and cancer, the following interventions are recommended for implementation:**
  - Develop national strategies or action plans, and quality frameworks, for medical and care services in an integrated approach ensuring control to facilitate their implementation;
  - Raise awareness of general public and health care providers, promote public access to information on the disease, and on research and prevention/vaccination, encourage wider training for carers;
  - Implement multi-sectoral prevention (including vaccination) strategies especially for priority groups , including the promotion of voluntary testing/early screening;
  - In the case of cancer, implementing national screening plans especially for breast, cervical and colorectal cancer;
  - In the case of cancer, support implementation, dissemination and public awareness of preventive measures agreed in the European Code Against Cancer;
  - In the case of preventable chronic diseases, stepped-up attention for diabetes type 2;
  - For available vaccination, implement a timeline from birth until adultness and ensure follow-up for each individual.
  - Support and implement EU developed tools and initiatives such as the European HIV surveillance system, the European guidelines on cancer screening, national and regional cancer registries as a part of the European Network of Cancer Registries (ENCR) and as a part of the EU Cancer Information System; ECDC guidance of seasonal influenza.
  - Use standardised surveillance procedures and methods, improve epidemiological information on prevalence, incidence and survival rates, develop a vaccination information system (monitoring and reporting).

### Programming: the selection of investment priorities/intervention fields and definition of specific objectives and indicators

A number of investment priorities set out in the fund-specific regulations are relevant to Theme 5. These investment priorities are primarily found under Thematic Objective 9: ‘Promoting social inclusion, combating poverty and any discrimination’ and 8 ‘Promoting sustainable and quality employment and supporting labour mobility. The investment priorities that were selected most frequently in relation to health system reform were:

- **ESF 9i: Active inclusion, including with a view to promoting equal opportunities and active participation, and improving employability (17 Member States).**
- **ERDF 9a: Investing in health and social infrastructure which contributes to national, regional and local development, reducing inequalities in terms of health status, promoting social inclusion**
through improved access to social, cultural and recreational services and the transition from institutional to community-based services. This Investment Priority was identified in 7 Member States and seven Interreg A OPs;

- ESF 9iv: Enhancing access to affordable, sustainable and high-quality services, including health care and social services of general interest (11 Member States);
- ESF 8i: Access to employment for job-seekers and inactive people, including the long-term unemployed and people far from the labour market, also through local employment initiatives and support for labour mobility (11 Member States).

In total, 27 Member States (all except Cyprus) planned Investment Priorities that could be relevant for Theme 5 in their OPs. A full list of the relevant Investment Priorities for this theme and the Member States that selected them in their OPs can be found in Annex 1.5 (the thematic mapping document).

The Member States that selected Investment Priorities relevant for Theme 5 identified a number of specific objectives in their OPs which reflect their concern about the three main components of this theme. A few examples of such specific objectives per sub-theme are presented below:

**Active and healthy ageing:**

- Adapting jobs and the workplace to the life cycle by improving working conditions for older employees; Integration support for disabled people who are returning to work after long-term sick leave (AT)
- Improving the employability of older job seekers; Increasing participation in vocational training measures, especially of older people and youth (BE)
- Increased labour market participation and employment of people with reduced ability to work; slowing the decline in the working-age population’s ability to work
- Increasing the number of unemployed or inactive persons aged 54+ years in employment; Increasing the number of employed persons above 54 years of age with acquired and/or improved professional qualification and/or key competences (BG)
- Increasing employment among the target group including the elderly, non-qualified and disadvantaged people (CZ)
- Increase employment, especially among the long-term and unskilled unemployed and people with disabilities (LT)
- Improving the inclusion of seniors by offering suitable equipment (FR)
- To increase the employability of Economically Inactive and Long Term Unemployed people aged 25 and over, who have complex barriers to employment (UK)
- Promoting access of disadvantaged individuals to welfare/social care and health care services (EL)

**Healthy workforce:**

- To improve labour safety, especially in enterprises of hazardous industries (LV)
- Improved cooperation between education, labour market and on work training (SE)

**Health promotion and disease prevention:**

- Reduced alcohol consumption by people who have received services (EE)
- To enhance health awareness, primarily regarding disadvantaged people and regions (HU)
- Implementation of prevention programmes for diseases negatively affecting the workforce, dedicated to persons in labour market activity age (PL)
To improve accessibility to health promotion and disease prevention services, especially to persons who are subject to the poverty and social exclusion risk (LV)

Increasing the number of people receiving health programs and services aimed at prevention, early detection (screening), early diagnosis and treatment for major diseases (RO)

To enhance health awareness, primarily regarding disadvantaged people and regions (HU)

The indicators selected for the Investment Priorities relevant for this theme most often point at the numbers of participants in training or disease prevention programmes; few of them relate to health promotion initiatives. Examples of these indicators include:

- Unemployed persons over the age of 50 participating in employment programmes (BE)
- Participants above 54 gaining a qualification upon leaving (BG)
- Number of people who have received services aimed at reducing alcohol consumption (EE)
- Number of awareness raising activities/public campaign (HR)
- Number of public health care and prevention programmes (HU)
- Number of prevention programmes deployed for diseases negatively affecting labour resources (PL)
- Share of population from regions with largest disparities in terms of health status and healthcare accessibility engaged in preventive programmes (LT)
- Number of enterprises supported in hazardous industries that have implemented labour protection requirements (LV).

Projects supporting Theme 5 in the period 2014-2020

Annex 1.5 (the thematic mapping document) contains the results of the mapping of Member States spending on projects classified as falling under the Theme 5. For a comprehensive picture of what has been funded in the area of active and healthy ageing, healthy workforce, disease prevention and health promotion, it is necessary to look both at the numbers of projects and at the total expenditure. This theme appears to be the largest among the six health-related themes covered by the research, both in terms of the number of supported projects and in terms of their total budget. Overall, 2,535 out of a total of 7,404 projects have been classified to belong to this theme, representing 34% of the total number of projects. Investments under Theme 5 amounted to around EUR 2 billion\(^{154}\), or around 24% of health investments identified.

Investments in this theme were found in 25 Member States, with a particular concentration of projects in Poland (1,776 projects or around 70% of the total number of projects) and Germany (216 projects). No projects were found in the Netherlands, Portugal and Romania. The significant number of projects in Poland relating to health system reform is due, at least in part, to a large number of similar individual projects focused on the same action and theme implemented in different municipalities. The largest group of these Polish projects (just over 1,000) relates to the sub-theme Active and healthy ageing; the projects provide training and coaching services for people who are unemployed or inactive in the labour market, including people 55+ and people with disabilities. Support for such interventions is in line with a relatively low employment rate of older workers as well as the need for life-long learning activities as identified in the country report for Poland. Another large group of projects from Poland (over 200) concerns prevention programmes for early detection of diseases (in particular breast, cervical and colorectal cancer). These projects aim to address the issue of highly preventable mortality which was noted among others in the country report for Poland, they are also in line with the specific objectives articulated in several Polish OPs in relation to implementation of disease prevention programmes.

\(^{154}\) For around 3% of the Theme 5 projects budget information was not available.
All of the projects identified in Germany contribute to the sub-theme Active and healthy ageing and focus on life-long learning and reduction of long-term unemployment through provision of training and counselling. This is in line with the need for life-long learning activities as identified in the country report for Germany.

In addition to Poland and Germany, a significant number of projects under Theme 5 can also be found in Belgium, Spain, the UK, and Estonia. The bulk of the projects identified under this theme in these countries also deal with improving employability of persons who are long-term unemployed and/or who experience social exclusion on the basis of, for example, disability or old age. These projects reflect the need for such type of interventions expressed through the formulation of the specific objectives in the Operational Programmes of these Member States.

Figure 13 Projects falling under Theme 5 per Member State and Interreg programme

Overall, the largest spending on health systems reform projects appear in the countries with the most or significant number of such projects. The largest spending on health promotion projects is in Poland (around EUR 813 million), the UK (around EUR 321 million) and Latvia (around EUR 134 million). Although a significant number of health promotions projects are funded in Germany, their total budget is small, approximately EUR 4.5 million. In Latvia, a relatively large share of the projects in this theme relate to health promotion and disease prevention (17 out of 27 projects identified in Latvia for this theme focus on these priorities). These projects are implemented in various Latvian municipalities and involve educational and public awareness-raising activities organised for the citizens. The need for such interventions is clearly indicated as a specific objective in the Latvian OP Growth and Employment.

Other Member States that spent relatively significant amounts for this theme are Slovakia, Belgium, and Greece. In Slovakia, only three projects have been identified as relevant for this theme - all of them are national-level projects aiming at improving the employability of persons with disabilities and persons above 50 years of age. Two of these projects have a budget of EUR 50 million and one has a budget of EUR 30 million. These projects are aligned with the CSR for Slovakia calling for measures to address long-term unemployment by improving employment activation measures. In Belgium, several large projects are supporting employment of disabled people; others are helping long-term unemployed people to find a place in the labour market also in line with the CSR for Belgium. Similarly, in Greece, several large projects are supporting employment of particularly vulnerable groups (e.g. people living with disabilities and parents taking care of children with disabilities) also in line with recommendations stemming from the European Semester and in particular, from the Enhanced Surveillance Reports for Greece. Further details about the ESI Funded investments in terms of budget are presented in Figure 14 below.
The projects identified as relevant to this theme were further classified according to eighteen sub-themes. A breakdown of projects by sub-category and sub-theme is provided in the table below. It should be noted that one project can be classified as relevant to more than one sub-category/sub-theme.

**Table 13 Main sub-categories and sub-themes for Theme 5**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Number of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>T5.1</td>
<td>Active and health ageing</td>
<td></td>
</tr>
<tr>
<td>T5.1</td>
<td>Employment/Employability of elderly</td>
<td>18</td>
</tr>
<tr>
<td>T5.2</td>
<td>Discrimination/ageism</td>
<td>3</td>
</tr>
<tr>
<td>T5.3</td>
<td>Tackling (social) isolation</td>
<td>18</td>
</tr>
<tr>
<td>T5.4</td>
<td>Age-friendly environments</td>
<td>6</td>
</tr>
<tr>
<td>T5.5</td>
<td>Personalised care for older patients</td>
<td>8</td>
</tr>
<tr>
<td>T5.6</td>
<td>Life-long learning</td>
<td>250</td>
</tr>
<tr>
<td>T5.7</td>
<td>Other</td>
<td>0</td>
</tr>
<tr>
<td>T5.2</td>
<td>Workplace health and safety</td>
<td></td>
</tr>
<tr>
<td>T5.8</td>
<td>Mental health</td>
<td>133</td>
</tr>
<tr>
<td>T5.9</td>
<td>Healthy workforce (health promotion/disease prevention)</td>
<td>33</td>
</tr>
<tr>
<td>T5.10</td>
<td>Occupational safety</td>
<td>76</td>
</tr>
<tr>
<td>T5.11</td>
<td>Reintegration</td>
<td>1752</td>
</tr>
<tr>
<td>T5.12</td>
<td>Other</td>
<td>8</td>
</tr>
<tr>
<td>T5.3</td>
<td>Health promotion and disease prevention</td>
<td></td>
</tr>
<tr>
<td>T5.13</td>
<td>Early detection</td>
<td>295</td>
</tr>
<tr>
<td>T5.14</td>
<td>Risk factors (obesity, smoking, physical (in)activity, alcohol)</td>
<td>55</td>
</tr>
<tr>
<td>T5.15</td>
<td>Awareness raising</td>
<td>39</td>
</tr>
<tr>
<td>T5.16</td>
<td>(Patient) empowerment</td>
<td>21</td>
</tr>
<tr>
<td>T5.17</td>
<td>Intersectoral collaboration</td>
<td>8</td>
</tr>
</tbody>
</table>
The sub-theme T5.11 (Reintegration) falling under the sub-category 5.2: ‘Workplace health and safety’ is the largest in terms of the number of projects, followed by sub-theme T5.1 (Employment/employability of elderly) and sub-theme T5.13 (Early detection). Reintegration relates primarily to people at risk of social exclusion, including people with disabilities, who receive counselling and training with the aim of improving their employability. While the majority of these projects have a very broad scope without a specific focus on any specific disadvantaged group, some of them focus specifically on such social groups as people 55+ or people with disabilities (in some cases they have even a narrower scope, e.g. people with mental disorders).

The health projects identified under the health promotion thematic block cover mainly sub-themes 5.11 and 5.1, also in combinations, as many of the projects concern the integration of people, who for different reasons have been unemployed for a long period of time, back into the job market. Such combinations were identified e.g. in Poland and Lithuania. Another relatively large group of projects within the sub-category ‘Active and healthy ageing’ concern life-long learning (sub-theme T5.6; 250 projects). The bulk of these projects come from Germany and Belgium and it is important to note that the European Semester country reports for both Member States have pointed out the need for life-long learning activities in these countries. It is likely that most of the projects falling in these three sub-themes (5.1, 5.6 and 5.11) do not feature specific health-related objectives - the direct focus of these projects is more on employment and social integration than on health. Indirectly, however, these projects can be expected to contribute to better quality of life for the elderly and people with health problems, by fostering social inclusion and activity throughout old age.

Relatively fewer projects have been identified within the sub-category ‘Health promotion and disease prevention’. More than half of them (295) address early detection of diseases and 253 of these projects come from Poland. The projects in the sub-themes 5.14 (risk factors) and 5.15 (awareness raising) relate to a variety of risk factors and promote various measures aimed at health promotion. The majority of these projects address multiple health risk factors. Seven projects falling in the sub-themes 5.14 and/or 5.15 focus specifically on prevention of addiction to alcohol or drugs; four of them focus on promotion of physical activity; three address nutrition and obesity; and one project promotes blood donation.

**Exemplary projects**

There are a number of lessons and good practices that could potentially be shared with other stakeholders in other Member States related to on active and healthy ageing, healthy workforce, health promotion and disease prevention. These projects come from a range of Member States and include three projects supported by Interreg. The projects cover topics ranging from provision of individualised care to a group of the elderly to broad health promotion programmes for the whole country. The beneficiaries include NGOs and organisations providing various types of social services but also public administration bodies and municipalities. In most cases the projects are run by a partnership of different types of stakeholder organisations, each bringing a unique need and perspective to the initiative. An overview of these projects selected for this theme is provided in table 13 below.

Smaller projects focusing on needs of the specific groups of the society include the project from Luxembourg, in which people with autism obtain employment plans and further assistance in finding jobs, has a similar objective of labour market integration but also preventing social isolation. The project from
Poland offers individualised care to the elderly in a natural environment, at agricultural farms. Finally, the Health and Movement project aims to encourage young people at risk of obesity to practice physical activity.

Two large projects – one from Estonia and one from Slovenia – implement activities targeted at prevention of alcohol abuse. Both projects provide screening and treatment for people addicted to alcohol as well as training activities for staff involved in assisting the persons addicted and their families and awareness raising campaigns. The project from Estonia is implemented by the national health institute while the project from Slovenia puts emphasis on collaboration of various types of stakeholders including the public sector, NGOs and municipalities.

A few projects are developing health promotion activities covering several topics, including healthy nutrition, physical activity, and prevention of diseases and disorders such as obesity. The largest project in this group in terms of budget comes from Croatia and involves a variety of stakeholders. The project envisages promotion of healthy nutrition and physical activity through organisation of educational activities and awareness raising campaigns. The methodology and approaches to inter-sectoral collaboration and involvement of various stakeholders could potentially be replicated in other Member States. The project from Italy focuses specifically on physical activity and prevention of obesity and involves mainly organisation of sport events at a local level. The Latvian project covers many health-related aspects and segments of the population including children and pregnant women, but it addresses the population of only one municipality – similar projects are implemented in several other Latvian municipalities according to the guidelines issued by the Latvian Ministry of Health.

Capa Cité is a broad partnership across universities, municipalities, and NGOs aiming to promote healthy lifestyle in the cross-border region involving France, Spain and Andorra. Likewise, the Baltic city prevention and the Let us be active projects in the Baltic region are funded by the Interreg programmes and aim to advance preventive interventions by involving partnerships between different public authorities and in the case of the Baltic city prevention, the private sector and academia.

Finally, the project ‘Sustainable working life’ from a municipality in Sweden stands out as one that focuses on health promotion trainers. The ESF-funded project provides training and certification for the managers and staff of organisations operating in the field of health education. The project will develop methods and standards for continued process of coaching for healthy working environment.
### Table 14 Exemplary projects for Theme 5

<table>
<thead>
<tr>
<th>Project title</th>
<th>Member State</th>
<th>Beneficiary(ies)</th>
<th>Budget €</th>
<th>Co-finance %</th>
<th>Fund Dates</th>
<th>Brief description of project activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soberer and healthier Estonia</td>
<td>Estonia</td>
<td>National Institute for Health Development (public sector)</td>
<td>10,199,791</td>
<td>15 % ESF</td>
<td>2014-2020</td>
<td>The project provides screening, intervention and treatment services for alcohol use disorders as well as increases awareness of alcohol-use related risks. The project provides also training for healthcare and support staff needed for the prevention and treatment of alcohol misuse.</td>
</tr>
<tr>
<td>Healthy living</td>
<td>Croatia</td>
<td>Croatian institute of public health, 21 county institutes of public health, NGO’s and civil societies on local level, various ministries and institutes</td>
<td>3,970,366</td>
<td>85 % ESF</td>
<td>2016-2022</td>
<td>Educational activities and awareness raising campaigns, promotion of healthy nutrition and physical activity, development of the methodology, training and capacity building, strengthening cooperation among various stakeholders.</td>
</tr>
<tr>
<td>Health and Movement</td>
<td>Italy</td>
<td>A.I.G.E. ASS.NE INF.NE GIOVANI EUROPA, Agora Clubs, Grumo Tennis Club, Paloma, Project Europa 2000, Up Level, San Giorgio Maggiore parish and neighboring schools</td>
<td>31,959</td>
<td>N/A YEI</td>
<td>2015-2016</td>
<td>Organising various sports events in order to raise awareness about the importance of physical activity for young people who are overweight or obese. Implementation of educational and awareness-raising campaigns.</td>
</tr>
<tr>
<td>O.P.E.C.E.</td>
<td>Luxembourg</td>
<td>Autisme Luxembourg</td>
<td>540,000</td>
<td>50% ESF</td>
<td>2016-17</td>
<td>Drafting tailored action plans (‘employability reports’), for autistic young people. These action plans provide a means to prioritise Autisme Luxembourg’s work according to the needs and abilities of the autistic jobseekers the foundation works with. The assessments conducted for these reports will lead to personalised job search strategies for some or to recommendations for participation in protected workshops for others.</td>
</tr>
<tr>
<td>Marupe Municipality</td>
<td>Latvia</td>
<td>Marupe municipality, Ministry of Health</td>
<td>196,051</td>
<td>85 % ESF</td>
<td>2017-19</td>
<td>Within the framework of the project, the following activities will be implemented: Educational activities for children: interactive sessions on the basic principles of healthy nutrition, on the promotion of sexual and reproductive health, on mental health; health promotion camps. Health promotion measures for women during pregnancy. Health promotion measures for the population in the age group of 54+. Promotion of physical activity in the society interest groups of the population. Other health promotion measures for residents of Marupe municipality.</td>
</tr>
<tr>
<td>Green Care Farms</td>
<td>Poland</td>
<td>Agricultural Advisory Centre in Minikowo Local Action Group “Bory Tucholskie” - NGO</td>
<td>815,165</td>
<td>85% ESF</td>
<td>2016-2018</td>
<td>Establishment and operation of green care farms, providing places for elderly and/or disabled people from several municipalities. Caregivers and tutors (volunteers) acquire qualifications for providing care and implementing various activities. Training is provided to support the setting up and development of this activity. The project foresees exchange visits between the farms.</td>
</tr>
<tr>
<td>Sustainable Working Life</td>
<td>Sweden</td>
<td>Sundsvall municipality</td>
<td>682,940</td>
<td>75%</td>
<td></td>
<td>The project is targeting the municipal sector in the municipality of Sundsvall and implements the following activities:</td>
</tr>
<tr>
<td>Project title</td>
<td>Member State</td>
<td>Beneficiary(ies)</td>
<td>Budget €  Co-finance % Fund Dates</td>
<td>Brief description of project activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>-------------------------------</td>
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<td>-----------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsible approach to alcohol use (SOPA)</td>
<td>Slovenia</td>
<td>National Institute of Public Health, Ministry of Health, 18 Community health centres, 18 Centres for social services and family, Employment service of Slovenia, mass media companies, NGO’s, Local communities</td>
<td>5,844,623 80 % ESF 2016-2020</td>
<td>Education for managers in health promoting organisations and health management. Education for staff employed in the areas of health, working environment and gender equality. Certification of health promoting organisations. Organising awareness raising actions in community health care centres targeting persons with risky drinking behaviour and offering them specific services. The project includes comprehensive capacity building of health professionals in the area of alcohol harm reduction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capas Cité</td>
<td>Interreg A (FR-ES)</td>
<td>Saragossa University; University of Pau and of Pays de L’Adour; City Council of Huesca</td>
<td>2,674,787 65 % ERDF 2016-18</td>
<td>The project aims to create a new cross-border health infrastructure: the Pyrenean Center for the Improvement and Promotion of Physical Activity for Health, the use and management of which will be shared by all partners and open to other key players in these areas. Three main activities will be developed: programs for the improvement of health through physical activity directly actions promoting healthy lifestyle communication strategy to ensure the right people join the activities of the center, to identify the ones in need of particular support.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baltic city Prevention</td>
<td>Interreg V-B Baltic sea Region</td>
<td>Flensburg University of Applied Sciences, Universities and Public Health Authorities in different countries</td>
<td>EUR 2,705,000 75% ERDF</td>
<td>The project has four main objectives: (1) To strengthen the institutional capacity of Public Health Authorities in the seven participating countries by identifying their needs and requirements to better tailor interventions to specific user groups; (2) to apply a participatory and user-driven approach in prevention intervention planning with the involvement of modern technologies in the planning cycle and in the interventions; (3) to implement and test the approach and the whole planning cycle in different pilot sites; and (4) to foster the cooperation between Public Health Authorities and companies from the eHealth sector.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Let us be Active</td>
<td>Interreg Central Baltic</td>
<td>Baltic Region Healthy Cities Association, Finland, City of Turku, Finland, Riga City Council Welfare Department, Latvia, City of Pärnu, Estonia</td>
<td>EUR 264,007 79% ERDF 2015-2017</td>
<td>The overall objective of the project ‘Let us be active!’ was to contribute to the improvement of social inclusion of the older people in Estonia, Finland and Latvia. This was achieved by working together with municipalities of Pärnu, Turku and Riga on developing a programme that will allow older people to stay active and participate in their communities with the voluntary work.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Conclusions

Overall, Theme 5 contains the greatest number of projects co-financed from the ESIF for health across all the six themes; this group of projects represents also the largest amount of spending as compared with the other themes. Within Theme 5, a significant proportion of the projects focus on supporting employability and social integration - these are mostly projects supporting reintegration of the unemployed (including persons with disabilities) into the labour market. These projects contribute to health objectives through measures supporting social inclusion of people with health problems. Another large group of projects contains measures related to ‘Active and healthy ageing’, including life-long learning and coaching for people aged 50 and over. Fewer projects support the sub-theme ‘Health promotion and disease prevention’. These projects frequently address disease prevention through screening programmes targeting specific diseases such as cancer; there is also a group of projects within this sub-theme focusing on awareness raising with respect to various risk factors and promotion of a healthy lifestyle.

Many of the projects, especially those targeting employability of people with disabilities, follow a single or similar pattern (e.g. those in Poland, Slovakia, Germany, Belgium and UK). The countries with the highest budgeted amounts for Theme 5 interventions are indeed those where issues related to the relatively low employment rates of older workers, the need for life-long learning and/or problems with ensuring adequate long-term care for older people has been noted in the European semester country reports. While these projects can address the pressing needs identified in the Member States, some countries with pronounced problems in these areas (in particular BG, HR, LT, SI, and RO) have not (yet) funded projects in this area or the number of projects is very low. It is important to add however, that the questions of unemployment among older workers, the need for life-long learning and issues related with ensuring adequate long-term care for older people might be tackled also by projects that are not health related and were not therefore identified in the context of this study.

Several good practice examples have been found across the Member States that tackle important problems classified under this theme: supporting the employability of disadvantaged groups such as people living with disabilities, providing long-term care for the elderly and dependent persons, addressing health risks and encouraging prevention and health promotion interventions. Many of them provide good examples of fostering cooperation among various stakeholders and implement national and/or EU guidelines. In the context of many policy documents stressing the role of preventative and promotional measures, the projects offering health promotion programmes and inter-sectoral collaboration seem to be most interesting for potential replication.
Theme 6: Health workforce

Background and policy context

The health workforce includes a range of workers in the healthcare sector - those delivering healthcare services (doctors, nurses, dentists, midwives, pharmacists) as well as allied health professionals, public health professionals, health management and administrative and support staff. In the near future, the demand for healthcare will increase dramatically with Europe's ageing population. This will have significant consequences on the way in which healthcare systems respond to patient needs. In particular, the increasing numbers of elderly people with multiple chronic conditions will require new treatments and new care delivery models and necessitates changes in skill mixes and new ways of working for health professionals. Yet, at the same time, most Member States are currently facing critical health workforce shortages.

Supporting the development and maintenance of a secure and qualified health workforce is an important and cross-cutting issue for EU public health policy. The recruitment and retention of a qualified health workforce has the potential to support multiple EU policy goals by ensuring the availability and quality of healthcare services, whilst simultaneously creating sustainable jobs driven by the growing demands for healthcare.

The health workforce issue gained prominence in 2008 with the adoption of a Commission Green Paper, ‘On the European Workforce for Health’, which aimed to increase the visibility of the issues facing the EU health workforce as well as set out areas for further action. The Green Paper highlighted a number of key challenges facing the sector which are more or less common to all EU Member States:

- **Demography**: the ageing population simultaneously creates greater demand for healthcare, impacts the nature of healthcare needs (e.g. more chronic diseases) and means that there are insufficient numbers of young people ready to replace workers who retire.
- **Attractiveness of the sector**: working conditions are difficult and the pay is relatively low in some health care occupations.
- **Training capacity**: in addition to increased needs for basic training for new professionals, the evolving nature of the health care sector means there is need for continuous professional development, as well as complementary skills such as management and languages.
- **Mobility issues within the EU**: free movement of labour has the potential to address labour shortages in many ways, but this is complicated by ineffective implementation of EU laws in this area.
- **Global migration of health workers**: there is a negative impact on the health systems of developing countries due to migration of skilled workers to the EU. This is worsened if the EU is not able to produce and retain sufficient numbers of its own workers.
- **Workforce planning**: data and information on existing workers and projections of needs are critical to guide any action taken.

The Green Paper also touched upon emerging issues such as the need to encourage entrepreneurship in the healthcare sector as well as the role of information technology and the use of Cohesion Policy for the 2007-2013 period.

A 2010 Ministerial Conference ‘investing in Europe’s health workforce of tomorrow: scope for innovation and collaboration’, underlined the need to develop initiatives to invest in sufficient, motivated and well-
skilled health professionals and was followed by a set of Council conclusions\(^{156}\) invited Member States to strengthen collaboration and stimulate education and training, and also called on the Commission to develop and action plan providing options to support the development of Member States’ health workforce policies, with a focus on workforce planning. It also called for a joint action to support workforce planning to be included in the 2011 workplan of the Health Programme.

The Action Plan for the EU Health Workforce was adopted by the Commission in 2012. It took the form of a staff working document accompanying Commission Communication ‘Towards a job-rich recovery’, underlining the linkages between the health workforce and overall employment goals. The document described how the EU’s health workforce could contribute to meeting the 2020 employment target of 75% for women and men aged 20-64, whilst simultaneously reducing shortages in the healthcare sector. The document defined workers in the healthcare sector as those delivering healthcare services (doctors, nurses, midwives, dentists, pharmacists), allied health professionals, public health professionals, health management and administrative and support staff\(^{157}\). It reiterated the main challenges facing the sector as laid out in the 2008 Green Paper and emphasised that around 15% of total health care needs would not be covered by 2020 compared to 2010 without further measures to meet the health workforce challenges.

Taking an EU perspective, the Action Plan noted that the incidence of healthcare worker shortages varies both within Member States and across the EU, indicating that more flexibility with regard to the mobility of workers would be needed. It also pointed to shortages of generalist practitioners, noting that the number of medical specialists is increasing much more rapidly. This trend negatively impacts access to care in many areas. More recently, the findings. The 2016 OECD overview of health in Europe\(^{158}\) reported that there has been an increase in the number of doctors in many EU countries, accompanied by an increase in education and training efforts in light of the number of doctors retiring. Nevertheless, the report also notes that the overall share of generalists has come down in most countries. Some countries are taking steps to address this by improving work conditions and remuneration (e.g. through group practice) or by enhancing the roles of other types of health care providers, such as nurse practitioners. The number of nurses has likewise increase in most European countries, with several countries talking measures to train more nurses domestically and attract those from other countries. There remain, however, significant differences across Member States relative to their population size.

To address the challenges the EU faces in optimising the health workforce, the Action Plan proposed the following sets of actions:

- Forecasting health workforce needs
- Anticipating skills needs in the health professions
- Share good practice on effective recruitment and retention strategies for health professionals

To support efforts in these areas, the EU has undertaken several actions. In the area of health workforce planning, the EU supported a Joint Action during 2013-2016159. Among other things, the Joint Action summarized the planning methods used across the EU and tested good practices within selected Member States, looked at common trends for the health workforce labour market, and proposed indicators to measure imbalances and mobility flow\(^{160}\).

Addressing skills needs is a multi-faceted issue. A number of EU networks and initiatives were put in place to examine skills needs and competence profiles, as well as help bridge the gap between education and

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\(^{156}\) Council conclusions on investing in Europe’s health workforce of tomorrow: Scope for innovation and collaboration’ 305

\(^{157}\) Commission Staff Working Document SWD (2012) 93 final of 18 April 2012


\(^{159}\) www.healthworkforce.eu

\(^{160}\) Final Guide of the Joint Action on Health Workforce Planning and Forecasting, available at www.healthworkforce.eu
employment and to enable access to continuous professional development. In 2009 the European Commission put in place a pilot network of nurse educators and regulators, which mapped skills and competences as well as best practices and provided recommendations on training requirements and educational support in this area. It is not clear however whether this network still functions in practice.

The Action Plan notes that transnational mobility can offer access to new jobs and training opportunities and can address mismatches between labour supply and demand. The 2013 modernisation of the Professional Qualifications Directive has been designed to simplify the EU system of recognition of professional experience and promote the automatic recognition of professional experience across the EU. The Directive allows for the automatic recognition of certain professions; among these are doctors, dentists, nurses, midwives and pharmacists. The updated Directive makes it easier for Member States to apply the rules in practice; for example it specifies minimum training requirements for doctors, requiring basic medical education to comprise 5,500 training hours to be completed within a minimum of five years. It also introduces a voluntary European professional card (EPC) which can assist professionals to have their qualifications recognized more quickly; this was made available for the nursing procession in 2016.

Recruitment and retention are critical in sector where a large portion of the existing workforce is nearing retirement age. Wage levels as well as factors related to the work environment are at stake, along with the support for a workforce that relies heavily on women. While there is great variation across EU countries, the most common recruitment and retention problems relate to the education of professionals including opportunities for continuous professional development; working conditions and environment including professional and personal support as well as regulation related to the scope of practice of the profession, particularly for nurses. There is EU legislation in place aimed at ensuring good working conditions in the healthcare sector, and a European Social Dialogue works to support this on an ongoing basis. Further EU action in this area could be useful as well as European cooperation on good practice.

Structural reforms at the Member State level: the EU semester process

Given the importance of a functional and resilient health workforce for both the efficiency of healthcare systems and the impact on public expenditure, as well as the significant employment opportunities the sector provides, the health workforce has a role to play in the achievement of the Europe 2020 goals related to smart, sustainable and inclusive growth. As such, the efforts of Member States to address shortages and gaps in their health workforce through planning, training, financial support and other measures feature in the country reports and recommendations developed as part of the European Semester process.

The Annual Growth Survey (AGS) kicking off the 2018 European Semester process sets out the general economic priorities for the year. It focuses on boosting investment, pursuing structural reforms, and promoting responsible fiscal policies. Within these, it notes the importance of health care to sustain the labour force and protect people from poverty. The AGS notes that public expenditure on health care and long-term care is expected to increase significantly in the coming decades, putting greater pressure on the need for effective and resilient health systems.

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161 http://www.hca-network.eu/
164 EMHA, Recruitment and Retention of the Health Workforce in Europe, report for the Consumers, Health, Agriculture and Food Executive Agency (Chafea) acting on behalf of the European Commission, 2015.
At the Member State level, when the Country-Specific Recommendations (CSRs) over the past several years target the health sector, they tend to focus on the overall efficiency of the health care system. Typically, this implies taking measures to improve the overall capacity and resilience of the health workforce and this is specifically mentioned in the recent country reports and CSRs for several Member States. A well-functioning health workforce is an important part of an efficient health-care system, and most Member States are working on supporting this sector through long-term planning efforts and targeted actions such as specific incentives or support for critical professional or locations.

Based on the 2015-2018 CSRs, around half of the Member States need to pay particular attention to this issue; most of these are in the new Member States in central and eastern Europe. These countries tend to face labour shortages and higher rates of migration of skilled professionals to other parts of Europe or third countries. The particular issues mentioned include labour shortages generally (BG, EE, HU, IE, PL, RO and SK) and a lack of adequate provisions for health workforce planning (BG, CZ, HU, PT, RO). In most of the countries mentioned, there are important issues with regional inequalities, which impact access to healthcare for parts of the territory. Wages are frequently an issue, especially for support functions; in some countries informal payments still complicate this problem.

An important case is that of Bulgaria, which reports that the number of doctors emigrating each year equates to almost 90% of the number of medical graduates, and that is supply of nurses is around half the EU average ratio. Given this, the EU has specifically recommended that the country address shortages of healthcare professional as part of a CSR for 2017.

**Spending priorities for ESI Funds and programming results 2014-2020**

**Programming guidance: the health thematic fiche**

Member States have many opportunities to use ESI funds to support the health workforce, ranging from planning to educational support to direct training initiatives. The Action Plan for the EU Health Workforce specifically suggests that the ESI funds for 2014-2020 can invest in jobs in the healthcare sector, through measures for upgrading skills and training, as well as providing counselling on long-term employment opportunities in the sector. More specifically, based on the Commission’s 2014 ‘Investments in Health Policy guide for the European Structural and Investment Funds (ESIF) 2014 - 2020’- which aims to target spending towards EU health policy goals as well as the implementation of reforms recommended as part of the European Semester process - notes a number of key spending areas that are relevant for the health workforce; these are presented in the box below.

**Box 7 Spending priorities to support the health workforce**

<table>
<thead>
<tr>
<th>Spending priorities to support the health workforce</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Thematic Objective 8: Promoting employment and supporting labour mobility:</strong></td>
</tr>
<tr>
<td>• Support workforce planning in the sector including performing an inventory of all health staff to plan any necessary re-allocation and guide public investments in education and training.</td>
</tr>
<tr>
<td>• Support the training and adaptation of the health workforce, and encourage continuous professional development and life-long learning, to match future demanded skills and services, including:</td>
</tr>
<tr>
<td>o Optimise overall management human resources and improve/adapt staff mix;</td>
</tr>
<tr>
<td>o Implement human resources management and training strategies for a continuous professional development of the health workforce and build up human capital, improving responsiveness to patients' needs and quality of health care service.</td>
</tr>
</tbody>
</table>

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As part of the transition from hospital-based to more community-based care, support reorientation of specialist to general practitioners, to strengthen healthcare in primary care settings;
- Increase pool of primary care human resources from education and training programmes [also under TO 10];
- Increase role of health staff other than doctors in service delivery (e.g. nurses).

- Support measures to enhance the attractiveness of the health professions in rural and remote areas to improve access to healthcare and territorial cohesion within a Member State, by means of, for example, financial compensation, housing or travel support or via a career mandatory phase or promotion opportunities.
- Support measures to encourage, train and offer young people work experience in the wide range of healthcare occupations [see also TO 10].
- Support measures for good working conditions, career advancement of the health workforce, including as a main ‘retention’ strategy in the profession/country and to attract knowledge and skills locally.

TO 10: Investing in education, skills and lifelong learning:

- Increase pool of primary care practitioners through, for example, promoting the option at university education level or specific training programmes [also under TO 8]
- Develop protocols on and include/reinforce in professional education and (lifelong) training programmes, for health professionals and other healthcare workers (as relevant):
  - Multidisciplinary aspects of patient safety;
  - Specificities in relation to alcohol, tobacco, nutrition and physical activity and related risk factors, and on how to provide treatment to combat addictions;
  - Specificities in relation to old age and ageing (e.g. comprehensive case management, multimorbidity, polypharmacy);
  - Specificities in HIV/AIDS, cancer, neurodegenerative diseases such as Alzheimer’s disease, mental disorders, and other major and chronic diseases;
  - E-health and ICT skills needed for the healthcare sector.

Programming: the selection of investment priorities/intervention fields and definition of specific objectives and indicators

The health workforce is a cross-cutting issue, impacting issues related to employment as well as quality and access to healthcare. Accordingly, a wide range of the Investment Priorities listed in the fund-specific regulations\(^{167}\) are potentially relevant for the health workforce. These fall primarily under the Thematic Objectives 8, 9, 10 and 11 and are typically associated with the ESF. Among those selected by multiple Member States are:

- **ESF 8i:** Access to employment for job-seekers and inactive people, including the long-term unemployed and people far from the labour market, also through local employment initiatives and support for labour mobility
- **ESF 9iv:** Enhancing access to affordable, sustainable and high quality services, including health care and social services of general interest
- **ESF 10iii:** Enhancing equal access to lifelong learning for all age groups in formal, non-formal and informal settings, upgrading the knowledge, skills and competences of the workforce, and promoting flexible learning pathways including through career guidance and validation of acquired competences

In total 19 Member States planned Investment Priorities that could be relevant for the health workforce in their OPs. A full list of the relevant Investment Priorities for this theme and the Member States that selected them in the OPs can be found in Annex 1.6, the Thematic mapping document.

Similarly, the specific objectives that have been developed by the Member States to guide spending are also broad and target skills improvement generally. Some of the investment priorities take a more strategic approach (e.g. Sweden: ‘improved cooperation between education, the labour market and workplace training’) while others directly target the health sector (e.g. Romania: ‘improving the skills of the professionals in the medical sector’. Some target health more broadly (e.g. Poland: ‘implementation of quality activities and organisation in the health system to facilitate access to affordable, sustainable and high-quality health services).

There are no common indicators requires for ESF or ERDF programmes that would measure impacts related to the health workforce. There are however several programme-specific indicators developed by different Member States that are related to the health workforce. These range from purely output indicators (e.g. Portugal: participants in training sessions for health care and social services professions) to those that aim to measure some degree or results (e.g. Croatia: persons employed in the field of health two years after completing medical education and training supported by ESF).

Examples of programme-specific indicators used for this theme by Member States are:

- Share of persons who successfully completed training and apply the obtained knowledge at work from 6 to 12 months after taking part in the ESF activities (LT).
- Participants in training sessions for health care and social services professionals (PT).
- Persons employed in the field of health two years after completing medical education and training supported by ESF (HR).
- Number of persons providing health care, health care support, and pharmaceutical care with improved professional qualification in the frames of life-long learning activities (LV).

Very few Interreg Programmes include monitoring indicators. The following four examples have been found with relation to the Theme 6:

- Number of persons certified in emergency assistance (Mayote-Comores-Madagascar).
- Population covered by cross-border initiatives in the fields of employment, training, culture, sport and health (ES-PT).
- Specialist training and development programmes for cross-border area health and social care providers (UK-IE).

In sum, the 2014-2020 OPs are high-level enough documents that allow many Member States, particularly those from the new Member States that face shortages in the health workforce, to support projects targeting the full range of policy goals in this area: workforce planning, skills-building and maintenance tied to needs; and recruitment and retention issues.

Projects supporting the health workforce 2014-2020

Annex 1.6 contains the results of the mapping of Member States spending on projects classified as supporting the health workforce. In order to get a composite picture of what has been funded in this area to support the health workforce, it is necessary to look both at the numbers of projects and also the total expenditure. Across the six health-related themes covered by the research, a relatively small number of projects directly support the health workforce - 275 out of 7,404 or around 4 percent of total projects. However, the total spending for this theme across projects identified to date is around EUR 0.98 billion or around 12 percent of around EUR 6 billion in total health-relevant spending so far. Very generally, there is a mix of smaller projects (< EUR 200,000) that aim to meet the individual needs of local institutions or
communities to improve the technical skills of health care workers, and a number of very large, composite projects that aim to build relevant skills across different institutions and regions.

The 275 health workforce projects identified through the mapping exercise were funded in 20 Member States. More than 70 percent of these projects are in Poland, Italy and Bulgaria. The number of projects supporting the health workforce by Member State are shown in the figure below.

Figure 15 Health workforce projects per Member State and Interreg programme

The large number of projects in Poland reflects the fact that similar projects involving training of nurses, midwives and physicians have been funded individually in multiple regions the country. Each regional project is listed separately in the lists of operations published by the Polish authorities. Bulgaria has funded around 12 projects supporting unemployed young people to gain employment in social services, as well as some smaller health institutions, essentially by using the ESI funds for the creation of working places. Italy has many smaller, specialised training projects to support social institutions, including NGOs.

With regard to the actual spending on health workforce projects, the picture is somewhat different by Member State. The figure below shows the total expenditure (both EU funds and any Member State co-financing) for the identified health workforce projects.
The total expenditure (EU funds as well as any national co-funding) for all health workforce projects identified is around EUR 979 million, while the average project budget is approximately EUR 3.6 million. However, the largest spending on health workforce projects does not necessarily appear in the countries with the most projects. The largest spending on health workforce projects is in Spain (EUR 513 million) followed by Poland (around EUR 115 million), Croatia (around EUR 113 million) and Greece (EUR 70 million). In terms of average project size, the largest projects are found in Croatia and Greece where they are EUR 38 million and EUR 14 million respectively - although these are likely large calls for grant proposals or compendia of smaller projects. For Greece and Croatia, this reflects earmarking of large amounts of funding for grants for training of medical professionals in regional or local institutions. Calls for applications are open, but there is no public record of how the funds have been awarded to direct beneficiaries. An example from Croatia is given in the box below. The smallest projects on average can be found in Italy (EUR 22,352) and the UK (EUR 68,244).

**Box 8 Croatia grants programme for postgraduate education in a medical specialty for doctors**

Croatia has earmarked EUR 24.8 million for supporting the education and training of medical specialists in particular parts of the country where workforce shortages dominate. Applicants must be regional health centres or emergency medical institutes from a list of selected regions, and they can receive grants that will cover 100% of project costs from 105,000 EUR to EUR 530,000 per institution/applicant for training in activities related to the implementation of the specialization program of the doctor of medicine in the following activities:

1) Family Medicine,
2) Pediatrics,
3) Gynecology and Obstetrics,
4) clinical radiology
5) emergency medicine

As well as management activities, reporting and promotion. It is an open, rolling call, subject to the availability of funds, and the deadline for project proposals is June 2018. There are similar large calls available for other topics related to medical education.

Source: SUMMARY OF INVITATION Specialist training of a doctor of medicine Limited Call For Proposals (Continuous Modality) Reference Number Call UP.02.2.1.02., available at http://www.esf.hr/natjecaji/socijalno-ukljucivanje/5809/

Similar large-scale health workforce training initiatives can also be found in Latvia and Slovakia.
Sweden also stands out as a country that has funded a number of larger-scale projects supporting the health workforce. The theme was given high importance in the national ESF OP, mainly in line with specific objectives to support labour markets in more remote areas as well as among young people. The 14 projects funded so far support competency development among health care workers in order to improve the attractiveness of the profession; and inclusion of vulnerable groups (e.g. those living in remote areas, as well as foreign-born persons and newly arrived immigrants) through employment in the health sector.

Ultimately, it should be borne in mind that because training, skills-building and workforce retention are cross-cutting issues, it is very likely that support for the health workforce is happening through other projects that primarily target other areas of health (e.g. Theme 2 support for health systems) and are therefore not mapped as part of this Theme 6, which focuses on project directly supporting or targeting the health workforce. It is also the case that some Member States (e.g. Estonia or Hungary) may simply not yet have started funding these types of projects at the time when the research was conducted, but intend to do so before the end of the programming period in 2020.

The health workforce projects were further classified according to eight sub-themes, in order to gain a better understanding of the issues being targeted. The breakdown of projects according to sub-theme is shown in the table below.

Table 15 Sub-themes for thematic block 6 ‘health workforce’

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Number of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>T6.1</td>
<td>Training of the health workforce</td>
<td>203</td>
</tr>
<tr>
<td>T6.2</td>
<td>Workforce planning</td>
<td>8</td>
</tr>
<tr>
<td>T6.3</td>
<td>Retention</td>
<td>1</td>
</tr>
<tr>
<td>T6.4</td>
<td>Promoting to work in the health sector</td>
<td>28</td>
</tr>
<tr>
<td>T6.5</td>
<td>Improving working conditions</td>
<td>42</td>
</tr>
<tr>
<td>T6.6</td>
<td>Healthcare professional’s curricula</td>
<td>12</td>
</tr>
<tr>
<td>T6.7</td>
<td>Healthcare workforce mobility</td>
<td>2</td>
</tr>
<tr>
<td>T6.8</td>
<td>Other</td>
<td>7</td>
</tr>
</tbody>
</table>

The vast majority of projects co-financed by ESI funds to date relate to the training of the health workforce. Many of these projects are small budget (<EUR 100,000) efforts that respond to particular skills needs within a healthcare institution or service provider or community organisation. These projects are usually driven by the initiative of the beneficiary organisation, which is typically an educational institution, social service provider or NGO/civic association. As such, the projects are very locally-driven and correspond to locally-identified needs for better skills - usually in a specific area of medicine or care, but they also include cross-cutting skills such as management. These projects clearly fit into the priorities and objectives of the OPs, but since these are very broad, this is not difficult to do. What is not clear from any of the documentation available for most of the Member States and projects is whether the projects are in line with a clear health workforce planning strategy that maps supply and demand for workers and skills across a country or region. From a good practice perspective, the most interesting projects are those that seem to either be rooted in an overarching strategy, or focus on meeting the evolving demands of healthcare today, or combine training with practical work and other initiatives. Some of these projects are detailed in the following section.

Projects that focus on other areas outside the training of health workers include the following:

- A large (>EUR 4 million) effort in the Midi Pyrenees region of France to construct university buildings to house two institutes for training of nurses;
An Interreg A cross-border programme project in Finland and Estonia that conducts research on trends and changes in the labour market in order to shape new curricula in the health promotion sector;

In Lithuania, efforts to attract young professions to health care institutions in areas of the country facing shortages through support for residency studies;

In Sweden, a large regional effort will support foreign-born population to gain qualifications and employment in the nursing procession.

In short, while many projects seem to be targeting highly relevant locally-driven and identified needs for training and skills upgrade, only a handful appear to be addressing the more strategic or larger aspects of workforce planning, including recruitment and retention strategies. Even in countries like Poland or Bulgaria where there are a large number of projects serving multiple different regions within the country, these projects focus on skills-building in areas such as management and human resources as well as medical specialities. There is also limited evidence of the training programmes that do exist targeting some of the key areas of focus in the policy documents or the Commission’s thematic fiche. This includes, for example: efforts to increase the pool of primary care specialists or to re-orient medical practitioners from specialist to generalists, or to support measures for good working conditions in an effort to retain workers. In some cases, however, training initiatives do state that better working conditions should be an outcome.

With regard to the structural reforms and efforts to implement the CSRs, Bulgaria stands out in this regard. One of the 2017 CSRs for Bulgaria calls on the country to take measures to address shortages of healthcare professionals. In line with this, Bulgaria is funding the relatively large (EUR 2.9m) effort to support the post-graduate training of medical professionals in targeted fields; more information about this project can be found in the following section. While Bulgaria was the only country in recent years (2015-2018) with a dedicated CSR targeting the health workforce, several other countries explicitly refer to workforce problems in their country reports, as described above. Most of these problems centre around workforce shortages and the lack of workforce planning; the country reports do not focus as much on lack of skills. Certainly skills-building is an important pre-requisite for a well-functioning workforce, and for effective healthcare systems; nevertheless, this is not the strategic task promoted in the documentation supporting structural reforms.

Exemplary projects

There are many good practices to be found across the projects across the portfolio of 2014-2020 projects funded to date that support the health workforce. These projects have been selected by the ESI Funds for health team based on their interesting or innovative character, policy relevance and potential for replication in other EU countries or regions. An overview of the ten selected projects for the health workforce thematic block is provided in Table 6.2 below. While all of the projects address skills-building, they take different approaches and have different interesting and innovative aspects.

These projects come from a range of Member States and two Interreg cross-border programmes, and cover topics ranging from workforce training courses for specific medical issues to the development of training centres covering a wider range of skills, to support for students undertaking advance studies in medical fields. Consistent with the findings regarding the overall group of ESI Funds projects supporting the health workforce, there is a greater emphasis on skills-building and training as opposed to more strategic efforts to tackle workforce planning or recruitment and retention approaches. There is also diversity among the direct beneficiaries across the projects, which is important as most of the projects are driven by skill or capacity needs identified by a key stakeholder institution either within the institution itself or within a local or regional community. These direct beneficiary institutions include universities, NGOs and organisations providing various types of social services. In most cases the projects are run by a partnership
of different types of stakeholder organisations, each bringing a unique need and perspective to the initiative.

Among the smaller, focused training projects are the Italian initiative ‘Teach to care’, which focuses on the needs of an ageing population by teaching care providers greater empathy as well as specific skills; it also sets up networks to allow these health workers to share information and support each other. In the Czech Republic, a project focuses on training social service providers to work with persons facing a ‘dual diagnosis’ of mental health issues combined with drug addiction. In both cases, the projects were initiated by individuals within local organisations and address targeted training needs.

A few larger projects are developing entire training centres, aiming to create reference centres in particular fields of medicine. In Portugal a large effort led by a university medical faculty in the capital city of Lisbon will construct a training centre with capacity to handle all aspects of maternal, new-born and children’s care through simulation techniques as well as enhanced research. It is part of a wider project aiming at upgrading medical services in the city. Similar projects have been investigated in Belgium, Luxembourg and Sweden, linked to regional development strategies and the need to integrate innovative practices into health care through training of the workforce. RARENET is a broad partnership across universities, hospitals, laboratories, other health care providers and patients’ groups to improve skills and research to improve capacities to detect and treat certain types of rare diseases; it operates in the Upper Rhine cross-border region involving France, Germany and Switzerland.

University curricula are another way to introduce new skills to the workforce. In Denmark, the Health Entrepreneurship project brings together multiple policy objectives targeting promotion of entrepreneurship and SMEs with training in health, which is something also promoted in the EU green paper and action plan. This project will develop programmes to prepare student in health fields to start and manage SMEs in healthcare and health promotion. Likewise, the INTERREG A project NURED in the Central Baltic region will develop curricula for home care nurses using a train-the-trainers approach, in response to shortages of such carers in the health workforce. Innovative activities include teamwork between nurses and home care workers and lifelong learning approaches meant to strengthen retention in the sector.

Finally, the ‘Specialisation in health’ project stands out as one that targets nationally identified shortages in doctors, and in particular targeted medical specialities such as anaesthesiology, paediatrics and emergency medicine among others. One of the reasons for the lack of doctors in Bulgaria is that medical students lack the private means to finance their studies and residency training periods. The ESF-funded project provides participants with financial support to complete their studies and enter the health care system as fully-qualified physicians.
<table>
<thead>
<tr>
<th>Project title</th>
<th>Member State</th>
<th>Beneficiary(ies)</th>
<th>Budget € Co-fi % Fund Dates</th>
<th>Brief description of project activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Training centre for medical and medico-social organisations</td>
<td>Belgium</td>
<td>Université catholique de Louvain</td>
<td>1,149,000 50% ESF 2015-20</td>
<td>The development of a training unit and resource for professionals from medical and medical-social organisations</td>
</tr>
<tr>
<td>2. Specialisation in health</td>
<td>Bulgaria</td>
<td>Ministry of Health</td>
<td>2.9m 100% ESF 2016-19</td>
<td>The provision of scholarships and payment of fees for practical training to support doctors and dentists, aimed at increasing the number of highly qualified medical specialists in the national workforce.</td>
</tr>
<tr>
<td>3. Mainstreaming of mental health...dual diagnosis</td>
<td>Czech Republic</td>
<td>Magdalena (NGO) Other NGOs - Bona, Fokus Praha, Kaleidoskop</td>
<td>100,000 85% ESF 2016-18</td>
<td>A partnership of NGOs aimed at increasing expertise to deal with dual diagnosis of mental illness and drug addiction.</td>
</tr>
<tr>
<td>4. SUNDIVÆRK HEALTH entrepreneurship</td>
<td>Denmark</td>
<td>University College South Denmark Haderslev Business Council, Development Centre South Denmark</td>
<td>700,000 50% ESF 2016-19</td>
<td>The project develops and implements courses for entrepreneurship in the health sector. It will allow university students studying healthcare-related fields to strengthen their business understanding, including finance, revenue and cash flow budgets, marketing strategies, etc. Aims to support the creation of small businesses in the health sector.</td>
</tr>
<tr>
<td>5. Teach to care</td>
<td>Italy - Lombardy region</td>
<td>Argentum (social cooperative) CGIL, CISL, UIL (unions)</td>
<td>21,000 50% ESF 2016-19</td>
<td>The project provides training courses for social healthcare workers to improve their capacity to provide care to the elderly, mainly aimed at providing a more ‘humane’ type of care.</td>
</tr>
<tr>
<td>6. CESIM</td>
<td>Luxembourg</td>
<td>De Widong</td>
<td>415,000 50% ESF 2015-17</td>
<td>The project uses simulation learning to improve their skills in handling medical emergencies. Aimed at healthcare workers (doctors, nurses, emergency staff) as well as management staff (administrators, etc).</td>
</tr>
<tr>
<td>7. Training equipment womens’/children’s health</td>
<td>Portugal</td>
<td>Universidade NOVA de Lisboa (medical faculty)</td>
<td>1.4m 50% ERDF 2017-20</td>
<td>Support for training equipment to be used for health promotion measures related to women’s and children’s health</td>
</tr>
<tr>
<td>8. NURED Nurse Education Development</td>
<td>Interreg A Central Baltic (FI EE LV SE)</td>
<td>Arcadia University (FI) Riga Stradina University</td>
<td>860,000 78% ERDF 2016-19</td>
<td>The project will develop curricula in the field of home care nursing, based on a needs survey of current workers and a teacher training approach. The approach also includes networking between home care nurses and registered nurses and lifelong learning.</td>
</tr>
<tr>
<td>Project title</td>
<td>Member State</td>
<td>Beneficiary(ies)</td>
<td>Budget €</td>
<td>Co-fi %</td>
</tr>
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<td>----------------------------------------</td>
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</tr>
<tr>
<td>9. RARENET</td>
<td>Interreg A Upper Rhine (FR DE CH)</td>
<td>University of Strasbourg, many other universities and hospitals, health associations and healthcare industry</td>
<td>3.9m</td>
<td>50%</td>
</tr>
<tr>
<td>10. HICUBE Competent Healthcare</td>
<td>Sweden</td>
<td>Halmstad University</td>
<td>1.5m</td>
<td>75%</td>
</tr>
</tbody>
</table>
Conclusions

Overall, there are still relatively few projects supporting the health workforce theme, especially when considering the large numbers of regional or local projects following a single or similar pattern such as those in Bulgaria or Poland. Nevertheless, the share of total expenditure for this theme is higher than the numbers of projects. This reflects a number of very large projects funded in some Member States (e.g. Bulgaria, Croatia, Greece, Latvia, Slovakia) that will train health workforce studies and professionals across the country. These countries are indeed those where workforce shortages have been pronounced, and this has been noted in the European semester country reports. Some countries with shortages and skills needs (e.g. Hungary) have not (yet) funded projects in this area.

There is a focus on targeted skills building and training; less emphasis on workforce planning, recruitment and retention strategies or other structural issues. It may also be that Member States are tackling these strategic issues through their own public administration budgets, while ESI funded projects are tackling the locally-driven specific skill needs. It is important to note where these types of projects are embedded in wider regional strategies for economic growth and innovation.

That said, there are some innovative good practice examples from across the Member States that tackle important problems such as bottom up-identified training needs, entrepreneurial and managerial skills, and support for more graduates in different health areas.
Annexes

1. Thematic mapping documents (1.1-1.6):

2. Country fact sheets and Interreg mapping documents:
   [http://www.esifundsforhealth.eu/explore-country](http://www.esifundsforhealth.eu/explore-country) and
   [http://www.esifundsforhealth.eu/explore-country](http://www.esifundsforhealth.eu/explore-country)

3. Project fiches: