

PART III

SOCIETAL CHALLENGES

Bitte beachten Sie, dass es thematische Überlappungen mit den anderen Herausforderungen gibt! Für Fragen stehen Ihnen die Mitarbeiter/-innen der NKS-Lebenswissenschaften gerne zur Verfügung!

1. HEALTH, DEMOGRAPHIC CHANGE AND WELLBEING

1.1. Specific objective

The specific objective is to improve the lifelong health and wellbeing of all.

Lifelong health and wellbeing for all, high-quality and economically sustainable health and care systems, and opportunities for new jobs and growth are the aims of support to research and innovation in response to this challenge and will make a major contribution to Europe 2020.

The cost of Union health and social care systems is rising with care and prevention measures in all ages increasingly expensive, the number of Europeans aged over 65 expected to nearly double from 85 million in 2008 to 151 million by 2060, and those over 80 to rise from 22 to 61 million in the same period. Reducing or containing these costs such that they do not become unsustainable depends in part on ensuring the lifelong health and wellbeing of all and therefore on the effective prevention, treatment and management of disease and disability.

Chronic conditions such as cardiovascular disease (CVD), cancer, diabetes, neurological and mental health disorders, overweight and obesity and various functional limitations are major causes of disability, ill-health and premature death, and present considerable social and economic costs.

In the Union, CVD annually accounts for more than 2 million deaths and costs the economy more than EUR 192 billion while cancer accounts for a quarter of all deaths and is the number one cause of death in people aged 45-64. Over 27 million people in the Union suffer from diabetes and the total cost of brain disorders (including, but not limited to those affecting mental health) has been estimated at EUR 800 billion. Environmental, life-style and socio-economic factors are relevant in several of these conditions with up to one third of the global disease burden estimated to be related to these.

Infectious diseases (*e.g.* HIV/AIDS, tuberculosis and malaria), are a global concern, accounting for 41 % of the 1.5 billion disability adjusted life years worldwide, with 8 % of these in Europe. Emerging epidemics and the threat of increasing anti-microbial resistance must also be prepared for.

Meanwhile, drug and vaccine development processes are becoming more expensive and less effective. Persistent health inequalities must be addressed, and access to effective and competent health systems must be ensured for all Europeans.

1.2. Rationale and Union added value

Disease and disability are not stopped by national borders. An appropriate European level research and innovation response can and should make a crucial contribution to addressing these challenges, deliver better health and wellbeing for all, and position Europe as a leader in the rapidly expanding global markets for health and wellbeing innovations.

The response depends on excellence in research to improve our fundamental understanding of health, disease, disability, development and ageing (including of life expectancy), and on the seamless and widespread translation of the resulting and existing knowledge into innovative, scalable and effective products, strategies, interventions and services. Furthermore, the pertinence of these challenges across Europe and in many cases, globally, demands a response characterised by long term and coordinated support for co-operation between excellent, multidisciplinary and multi-sector teams.

Similarly, the complexity of the challenge and the interdependency of its components demand a European level response. Many approaches, tools and technologies have applicability across many of the research and innovation areas of this challenge and are best supported at Union level. These include the development of long term cohorts and the conduct of clinical trials, the clinical use of "-omics" or the development of ICT and their applications in healthcare practice, notably e-health. The requirements of specific populations are also best addressed in an integrated manner, for example in the development of stratified and/or personalised medicine, in the treatment of rare diseases, and in providing assisted and independent living solutions.

To maximise the impact of Union level actions, support will be provided to the full spectrum of research and innovation activities. From basic research through translation of knowledge to large trials and demonstration actions, mobilising private investment; to public and pre-commercial procurement for new products, services, scalable solutions, which are when necessary, interoperable and supported by defined standards and/or common guidelines. This co-ordinated, European effort will contribute to the ongoing development of the ERA. It will also interface, as and when appropriate, with activities developed in the context of the Health for Growth Programme and the European Innovation Partnership on Active and Health Ageing.

1.3. Broad lines of the activities

Effective health promotion, supported by a robust evidence base, prevents disease, improves wellbeing and is cost effective. Health promotion and disease prevention also depend on an understanding of the determinants of health, on effective preventive tools, such as vaccines, on effective health and disease surveillance and preparedness, and on effective screening programmes.

Successful efforts to prevent, manage, treat and cure disease, disability and reduced functionality are underpinned by the fundamental understanding of their determinants and causes, processes and impacts, as well as factors underlying good health and wellbeing. Effective sharing of data and the linkage of these data with large scale cohort studies is also essential, as is the translation of research findings into the clinic, in particular through the conduct of clinical trials.

An increasing disease and disability burden in the context of an aging population places further demands on health and care sectors. If effective health and care is to be maintained for all ages, efforts are required to improve decision making in prevention and treatment provision, to identify and support the dissemination of best practice in the health and care sectors, and to support integrated care and the wide uptake of technological, organisational and social innovations empowering in particular older persons as well as disabled persons to remain active and independent. Doing so will contribute to increasing, and lengthening the duration of their physical, social, and mental well-being.

All of these activities shall be undertaken in such a way as to provide support throughout the research and innovation cycle, strengthening the competitiveness of the European based industries and development of new market opportunities.

Specific activities shall include: understanding the determinants of health (including environmental and climate related factors), improving health promotion and disease prevention; understanding disease and improving diagnosis; developing effective screening programmes and improving the assessment of disease susceptibility; improving surveillance and preparedness; developing better preventive vaccines; using in-silico medicine for improving disease management and prediction; treating disease; transferring knowledge to clinical practice and scalable innovation actions; better use of health data; active ageing, independent and assisted living; individual empowerment for self-management of health; promotion of integrated care; improving scientific tools and methods to support policy making and regulatory needs; and optimising the efficiency and effectiveness of healthcare systems and reducing inequalities by evidence based decision making and dissemination of best practice, and innovative technologies and approaches.

2. FOOD SECURITY, SUSTAINABLE AGRICULTURE, MARINE AND MARITIME RESEARCH AND THE BIO-ECONOMY

2.1 Specific objective

The specific objective is to secure sufficient supplies of safe and high quality food and other bio-based products, by developing productive and resource-efficient primary production systems, fostering related ecosystem services, along side competitive and low carbon supply chains. This will accelerate the transition to a sustainable European bio-economy.

Over the coming decades, Europe will be challenged by increased competition for limited and finite natural resources, by the effects of climate change, in particular on primary production systems (agriculture, forestry, fisheries and aquaculture) and by the need to provide a sustainable, safe and secure food supply for the European and an increasing global population. A 70 % increase of the world food supply is estimated to be required to feed the 9 billion global population by 2050. Agriculture accounts for about 10 % of Union greenhouse gases emissions, and while declining in Europe, global emissions from agriculture are projected to increase up to 20 % by 2030. Furthermore, Europe will need to ensure sufficient supplies of raw materials, energy and industrial products, under conditions of decreasing fossil carbon resources (oil and liquid gas production expected to decrease by about 60 % by 2050), while maintaining its competitiveness. Bio-waste (estimated at up to 138 million tonnes per year in the Union, of which up to 40 % is land-filled) represents a huge problem and cost, despite its high potential added value. For example, an estimated 30 % of all food produced in developed countries is discarded. Major changes are needed to reduce this amount by 50 % in the Union by 2030²⁶. In addition, national borders are irrelevant in the spread of animal and plant pests and diseases, including zoonotic diseases, and food borne pathogens. While effective national prevention measures are needed, action at Union level is essential for ultimate control and the effective running of the single market. The challenge is complex, affects a broad range of interconnected sectors and requires a plurality of approaches.

²⁶ COM (2011)0112