

## POSITION PAPER NFU

### *The NFU and EU health research beyond 2020*

### *Sustainable health; delivering health at a reasonable cost*

This position paper presents the vision of the NFU, the representative of the collective Netherlands University Medical Centers (umc's) on relevant health themes and challenges that are part of the EU2020 strategy and the grand societal challenges defined in Horizon 2020. The NFU wishes to endorse an integrated research and development approach, which facilitates implementation and up-scaling of healthcare solutions as well as the use of research knowledge in daily practise. The position paper provides NFU input towards EU Horizon 2020 strategic priorities 2016-2018, focusing on further European partnering. It does so in anticipation of a common health research theme beyond 2020 that is supported by the NFU and the Dutch government through their economic policy program: Topsector Life Sciences and Health.

*This statement reflects the ambition and experience of the University Medical Centres in the Netherlands. Typically, the three core tasks of a umc are integrating healthcare delivery, research, education, training and innovation in one single institution. In this paper, the NFU also outlines how it will contribute to solutions for these challenges, and support their implementation in healthcare.*

**Sustainable health** is the common focus theme of 2020 for the umc's. This entails the challenge how to keep our citizens **healthy at a reasonable cost and our healthcare affordable, accessible and of good quality**, especially in view of the ageing population and a number of environmental concerns. In the current transformation of healthcare, the role of university hospitals and academia is crucial to capitalise on the knowledge, technology and future healthcare professionals from these organisations. The future healthcare paradigm comprises a team approach with all relevant stakeholders in the delivery of patient centred care with research and innovation integrated as a continuous process, supported by technology and data exchange. The close connection from innovation to health care delivery, and to training of new generations of health professionals and researchers, facilitate immediate and sustainable implementation of innovative solutions.

*Umc's need the network of partners in all phases of generating, disseminating and translating knowledge into sustainable solutions – and thereby strongly depending on a value chain which consists of curiosity-driven and clinical research into fundamental biomedical processes, culminating in best practices, products and services applicable to health and care. Collaborative research has to be even more performed in conjunction with strategic partners (e.g. health organizations, charities, health insurers, (regional) governments), industry and end-users (e.g. professionals, patients and citizens)*

The umc's allow for a smooth transition towards innovative and sustainable health improvement through their big data collection and analyses, to increased participation of end-users and stakeholders (e.g. via social sciences research), and to a more personalised, risk prevention approach. In addition, Umc's are essential partners in cross-cutting approaches with other scientific disciplines such as engineering and technology (e.g. in medical devices), with nutritional (e.g. food and lifestyle in health) and environmental (e.g. public health and healthy cities) research, and with ICT for eHealth and mHealth solutions. Umc's are thus at the heart of multidisciplinary, interdisciplinary and transdisciplinary research. Research at umc's is complemented by excellent research infrastructure facilities and a single public finance mechanism for health research. Each umc covers a region where they can link with other partners to help building smart cities, which covers all aspects of active and healthy ageing in urban environments.



*The collective research repertoire of the Dutch umc's is creating regional synergies within national programmes and international projects, and thus establishes the Netherlands as an accessible and attractive partner for international collaborations. In addition, the structures and organisation of the umc's and their partners facilitate an effective interaction, region oriented instruments and programs of the European commission: e.g. such as the EIP Active and Healthy Ageing initiative.*

In 2012, the Dutch umc's presented their priorities to the European Commission: '[Dutch perspective in a European context](#)', summarizing a comprehensive approach to meet the needs and demands of the European citizens. The key drivers of this position paper were 1) relevance for science and society, 2) opportunities for business and entrepreneurship (i.e. SME's, MNE's) through standardisation and validation and 3) opportunities for international public private partnerships. This position paper inspired a major joint national policy initiative of the Netherlands in the field of Life Sciences and Health in 2013 presenting five focussed topics. We think this holistic approach could further contribute to the European Research Area and the Innovation Union of the EC, by focusing on the end user and by creating a strong basis for public private collaboration to enable multidisciplinary research under attractive conditions. The five topics are:

*Here we highlight the recent specific NFU contributions to these five topics. Our highlights are based on the strengths of umc research, strengths of umc partnerships and strengths of umc's infrastructure.*

- **Healthy aging**, with emphasis on vitality and a whole life cycle multidisciplinary approach, including longer and healthier lifestyles by facilitating and consolidating behavioural change, self-management and health promotion for individuals as well as populations.

*Important elements of the umc's approach contribute to improved management of neurodegenerative diseases (e.g. dementia and ALS) and incorporation of regenerative medicine in clinical practise (in collaboration with Europe's stem cell hub). These initiatives directly link research and distinctive infrastructures (e.g. biobanks), to the European Innovation Partnership on Active and Healthy Ageing and to the Joint Programming Initiatives (JPI) Neurodegenerative disease and More Years Better Lives.*

- **Enabling technologies**, including medical devices, is a topic where several sectors meet (ICT, enabling, devices) to support risk prevention actions, and health advancement in excellent regional 'triple helix' collaborative actions between government, knowledge institutes and industry.

*The Innovative Medical Devices Initiative (IMDI) and several high-impact regional initiatives show how public-private partnerships between umc's, SMEs and governments create solutions for self-management, innovative integrated care approaches, and high-tech bioimaging research infrastructures to support preventive actions, and health advancement. Population bioimaging in umc's forms an innovative multisectoral approach building on medical devices development and key enabling (nano-) technologies to provide solutions for risk prevention actions.*

- **Personalised care (medicine and nutrition)**: the ability to determine an individual's unique characteristics and to use these to select successful treatments, or to predict an individual's susceptibility in order to prevent disease offers an interdisciplinary way to support prevention and life style actions in general, and metabolic syndrome and obesity in particular.



*Umc's cover the whole value chain from a health systems approach to public health, and health promotion, e.g. by large scale epidemiological studies, monitoring and interventions research including Health Technology Assessment. The Dutch umc's further take a leading role in the Joint Programming Initiative 'Healthy Diet for a Healthy Life' in which health, nutritional, behavioural and environmental aspects are included in a partnership with major industrial partners. On EU level, the Dutch umc's participate in projects funded from the Innovative Medicines Initiative (IMI). Umc's are particularly relevant for research into rare diseases and orphan drugs, as well as for addressing all aspects of antimicrobial resistance such as surveillance, resistance characterisation and clinical research with new drugs.*

- **eHealth and mHealth** are considered key elements to increase sustainability of the Dutch Health Care System by making more efficient use of available resources, and by strengthening the engagement of citizens, patients and the health and social sector.

*Umc's have built numerous reliable relevant cohorts that provide input for big data analyses and subsequent 'content' for eHealth solutions for chronic conditions such as diabetes, cardiovascular diseases and dementia. This is taking place in close collaboration with dedicated industrial partners, underscoring the umc' interdisciplinary and transdisciplinary capacities for cure and care solutions. Umc's also participate in the Ambient Assisted Living (AAL) Joint Programme, aimed at creating better conditions of life for the elderly by means of using ICT.*

- **Research infrastructures** are critical for an integrated value chain for sustainable health.

*The umc's provide a solid infrastructure in this topic through dedicated identification of individual risk factors, pathophysiological analyses, inventory studies in large cohorts, and big data analyses. These infrastructures are elegantly exemplified by the umc's role in the Biomolecular Resources Research Infrastructure BBMRI (biobanking), European Advanced Translational Research Infrastructure in Medicine EATRIS (translational) and networks of Clinical research partners (ECRIN) European research infrastructure activities. E.g. the Dutch Biobank Hub is a pioneering action of the Netherlands (BBMRI-NL). Clinical research, as a core activity of umc's, is at the heart of development of personalised medicines. Gender-focused personal health advancement can be applied in the same umc's health care departments, e.g. for metabolic syndrome, and for personalised image-guided oncology or cardiovascular treatments. Umc's in regional consortia and life sciences business parks can step in where market forces alone fail to address unmet clinical needs.*

To make the healthcare transition successful, the strengths of the (bio-)medical and health research sector have to be consolidated and integrated in daily local healthcare, but still in close collaboration with relevant regional, national, European and international partners in addressing health-related challenges on a global scale. Results from the integrated approach will contribute to realising sustainable health in 2020.

*Complemented by state-of-the-art research infrastructures at umc's in biobanking, clinical and translational research, locally operated and widely accessible throughout Europe, these five topics open a window of opportunities for working together towards integrated sustainable health for future generations.*



**More information**

2012 NFU position paper 'Dutch perspective in a European context'

([http://www.nfu.nl/img/pdf/NFU\\_PosPaper\\_EuropeanResearchAgenda\\_2012.pdf](http://www.nfu.nl/img/pdf/NFU_PosPaper_EuropeanResearchAgenda_2012.pdf))

2014 Dutch government report 'Global challenges, Dutch solutions'

(<http://www.government.nl/documents-and-publications/reports/2014/01/21/global-challenges-dutch-solutions.html>)

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