Horizon 2020 Work Programme for Research & Innovation 2018-2020 - 2019 topics

The societal challenge 'Health, demographic change and well-being'

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Brokerage Event, Oslo, 3-4 September 2019
Research and innovation – a growing priority for the EU
Horizon 2020 supports Commission priorities

- Jobs, growth & investment
- Digital single market
- EU – a stronger global actor

- Couple research to innovation
- Provide evidence-base for addressing societal challenges, supporting EU policies and better regulation
- Strengthen research capacities and innovation strategies across all Member States
- Multidisciplinary and synergies
- Address people's concerns
Health Research in Horizon 2020

Collaborative R&I projects

Grants for small businesses

InnovFin
Loans for small & large companies

Public-Private Partnership with big Pharma

Horizon 2020

Horizon Prize
Birth Day

Prizes

Education – R&D – Innovation

Public-Public Partnerships with EU Member States & beyond

Blue sky research

More Years
Better Lives

SME Instrument

JPND research

MJPIAMR

EIT Health

European Research Council

FET

Horizon2020

Maria Skłodowska-Curie actions
Health collaborative research – 7 priorities for 2018–2020

- Personalised medicine
- Decoding the role of the environment for health and well-being
- Infectious diseases and improving global health
- Innovative health and care industry
- Innovative health, and care systems - Integration of care
- Digital transformation in Health and Care
- Trusted Big Data solutions and Cybersecurity for Health and Care
7 priorities implemented via SC1 Work Programme 2018–2020 through 3 Calls for proposals

Call 'Better Health and care, economic growth and sustainable health systems'
5 main priorities & 32 topics (15 topics in 2019)

Call 'Digital transformation in Health and Care'
13 topics (6 in 2019)

Call 'Trusted digital solutions and Cybersecurity in Health and Care'
3 topics (1 in 2019)

Other Actions 2018–2019
8 items
Priority 1 – Personalised medicine

- Personalised health and care solutions
- Chronic, rare and communicable diseases, including children, the ageing population and high-risk groups
- Understanding of the economic impact and the potential of personalised medicine to transform health systems

**IMPACT:** Improved health outcomes for the citizens

**POLICY DRIVERS + SUPPORT FOR:**

- Council conclusions on Personalised Medicine
- International Consortium on Personalised Medicine
- Commission communication on Digital Health and Care
- European Reference Networks
*BHC-01-2019: Understanding causative mechanisms in co- and multimorbidities combining mental and non-mental disorders

**Scope**
- Identify and validate the causative mechanisms in co- and multimorbidities combining mental and non-mental disorders
- Integrate fundamental, pre-clinical and/or clinical research*
- Maximise the use of available data, registries, cohorts and biobanks
- Include different etiological models of comorbid conditions: from disease(s), treatment(s), risk factor(s) - common or correlated, or any other pathways

**Expected impact**
- Elucidate the underlying pathophysiological mechanisms of co- and multimorbidities
- Enable new directions of clinical research to improve diagnosis, prevention, therapy and management of co- and multimorbidities
- Establish biomarkers for more accurate and earlier diagnosis as well as monitoring (where relevant)

**Practical aspects**
Research and Innovation Action, 70 M€ – 4-6 M€/proposal

* Clinical trials are excluded
*SC1-BHC-30-2019: Towards risk-based screening strategies for non-communicable diseases*

**Scope**
- Develop or refine screening interventions based on identifying groups at high risk of NCD disease
- Populations stratification by health risk factors and determinants

**Expected impact**
- Risk-based screening strategies effective, affordable, acceptable to the population, suitable for implementation
- Potential to improve health outcomes and equity across Europe

**Practical aspects**
Research and Innovation Action, 40 M€ – 4-6 M€/proposal
SC1-BHC-31-2019: Pilot actions to build the foundations of a human cell atlas

Scope
- Contribute to build the HCA cells atlas through research given on interdisciplinary technological/biological platforms able to generate and integrate data sets
- Primary focus on healthy cells and tissues and one organ, though comparison between healthy and diseased tissues possible
- Should provide detailed plans for quality management of tissue procurement and data in compliance with the relevant EU legislation.

Expected impact
- Timely contribution of project results to the HCA
- Effective and sustainable biological and/or technological platforms
- Competitive and sustainable European role in HCA
- Strong involvement of European technology and SMEs
- Potential to improve diagnosis and treatment of disease

Practical aspects
- Research and Innovation Action, 15 M€ – 3-5 M€/proposal – Duration of 2 years
- Proposals supported under this topic must strictly adhere to the values, standards and practices of the HCA
- Commission will ensure an overall coordination mechanism between the projects
- Proposals are expected to budget for the attendance of coordinators to regular meetings
To create comprehensive reference maps of all human cells—the fundamental units of life—as a basis for both understanding human health and diagnosing, monitoring, and treating disease.
Applications

- regenerative biology
- disease mechanisms
- variants to drugs
- drug discovery
- diagnostics
- drug toxicities
- drug efficacy & resistance
HCA shared Values

- Transparency and open data sharing
- Quality
- Flexibility
- Community
- Diversity, inclusion and equity
- Privacy and ethics
- Technological innovation and excellence
- Computational innovation and excellence

**Scope**
Actions in one of the fields:
- Support the building of PM networks with third countries (for 2019: China).
- Develop new clinical trial designs for PM that facilitate the approval by regulatory and reimbursement authorities.

**Expected impact**
Support the implementation of the IC PerMed goals and adoption of standards developed in Europe. Standardisation for clinical study design. Strengthen links between EU and China for personalised medicine.

**Practical aspects**
Coordination and support action, 4 M€ – 1.5-2 M€/proposal
Priority 2

Priority 2 – Innovative health and care industry

- Turning innovative knowledge and technologies into practical applications benefiting citizens, healthcare systems and businesses
- Clear exploitation potential, Innovative diagnostics and therapeutics
- Sustainable health systems
- Complementarity with the SME instrument, the Fast Track to Innovation and the Innovative Medicines Initiative (IMI).

**IMPACT**: To stimulate the healthcare industry

**POLICY DRIVERS + SUPPORT FOR:**

*Upgrading the single market*
Scope

- Translational research to develop regenerative processes addressing unmet clinical needs of public health importance
- Methods of transplantation included
- Focus on any stage of the innovation chain: from early testing of regenerative mechanisms to pre-clinical research, proof of concept or clinical trials. Section on exploitation.

Expected impact

- Potential of new regenerative therapies
- Strengthen Europe's position in translational regenerative medicine
- Address unmet needs of public health importance.

Practical aspects

Research and Innovation Action, 50 M€ – 6-8 M€/proposal
SC1-BHC-10-2019: Innovation Procurement: Next generation sequencing (NGS) for routine diagnosis

Scope
- Promote the implementation of NGS tests in routine diagnostics for personalised medicine, from a technical, clinical, organisational and/or economic point of view.
- Develop and implement NGS standards and quality assurance schemes.
- Develop tools and methods for data collection, management, analysis and interpretation of NGS results.

Expected impact
Strengthen the implementation of personalised medicine and thus contribute to more effective healthcare systems.

Practical aspects
Pre-commercial procurement, 30 M€ – 9-11 M€/proposal
Innovation Procurement: PCP + PPI Complementarity

- **PCP** to steer the development of solutions towards concrete public sector needs, whilst comparing/validating alternative solution approaches from various vendors.
- **PPI** to act as launching customer / early adopter / first buyer of innovative commercial end-solutions newly arriving on the market.
Priority 3 – Infectious diseases and improving global health

- Infectious diseases and the health of vulnerable groups
- 'One Health' approach
- Antimicrobial resistance, emerging and re-emerging infectious diseases, poverty-related and neglected diseases
- Maternal and newborn health, global collaboration on non-communicable diseases and on brain research

**IMPACT:** To prevent, detect and treat of priority diseases worldwide

**POLICY DRIVERS + SUPPORT FOR:**

- Global Research Collaboration for Infectious Disease Preparedness
- European One Health Action Plan against Antimicrobial Resistance
- European & Developing Countries Clinical Trials Partnership
- Global Action Plan on antimicrobial resistance
- Global Alliance for Chronic Diseases
SC1-BHC-13-2019: Mining big data for early detection of infectious disease threats driven by climate change and other factors

Scope
- Develop the technology enabling the pooling, access, analysis and sharing of relevant data including next generation sequencing
- Provide innovative bio-informatics and modelling technologies that enable risk modelling and mapping
- Create analytical tools for early warning, risk assessment and monitoring of (re-) emerging infectious disease threats

Expected impact
Strengthening EU preparedness against (re-)emerging infectious diseases threats enabling the digital transformation of health and care while underpinning the European One Health action plan against antimicrobial resistance and contributing to achieving Sustainable Development Goals

Practical aspects
Research and innovation action, 30 M€ – 12-15 M€/proposal
SC1-BHC-32-2019: Towards a next generation influenza vaccine to protect citizens worldwide – an EU-India collaboration

Scope
- Pre-clinical and/or early clinical research supporting proof of concept for next-generation flu vaccines
- Candidate should be suitable to different populations and to LMICs
- Work should be included on human challenge model.

Expected impact
- Further the development of a flu vaccine effective against more strains and/or effective at the outset of a pandemic.
- Utilisation and/or improvement of human challenge influenza model.
- Reduction of burden of flu outbreaks, especially in Europe and India.
- India-specific impacts, to boost national initiatives by developing affordable biopharmaceuticals.

Practical aspects
- Research and innovation action, 15 M€ – 6-10 M€/proposal
- Minimum 3 participants from India – see http://www.dbtindia.nic.in/funding-mechanism/call/#
SC1-HCO-15-2019: Support for the functioning of the Global Research Collaboration for Infectious Disease Preparedness (GloPID-R)

**Scope**
- Administrative and organisational support to GloPID-R.
- Will include meeting organisation, information dissemination, communication (internal and external), support to Industry Stakeholder Group, Scientific Advisory Group, and Chairs of GloPID-R.
- Technical support on more specific issues.

**Expected impact**
- Effective operation of the network for at least 3 years.
- Reinforced international cooperation in funding of research in new and emerging infectious diseases.
- Improvements during outbreaks in areas such as data sharing, social science, clinical trial networks and others.
- Improved communication of GloPID-R activities.

**Practical aspects**
- Coordination and support action, 1M€ – Around 1 M€/proposal.
Priority 5 – Decoding the role of the environment, including climate change, for health and well-being

Assessment of the impact of environment on health and well-being, and the related socio-economic impacts

• New testing and screening methods to identify endocrine disrupting chemicals
• The ‘human exposome’ – the impact of life-long environmental influences
• A European environment and health research agenda

**IMPACT:** Improved risk assessment and mitigation measures, health and well-being as a driver for changes required to achieve a sustainable society

**POLICY DRIVERS + SUPPORT FOR:**

1. Sustainable Development Goals
2. UNEA Ministerial Declaration & Resolution on Environment and Health
3. The UNFCCC Paris Agreement
4. WHO Environment and Health Process (since 1989)
5. The 7th Environment Action Programme (EAP)
6. EU policies and regulations: Chemicals, (e.g. REACH, Plant Protection, Biocides), air/water quality, noise, occupational health
**BHC-28-2019: The Human Exposome Project: a toolbox for assessing and addressing the impact of environment on health**

**Scope**
- Agnostic or targeted approaches to identify and assess environmental risk factors
- Target a long standing policy/regulatory need \(\rightarrow\) proposals for preventive actions
- Use new technologies to collect, combine and analyse large data sets of environmental exposures and health impacts
- Connections with industry for sensors, omics, biomarkers

**Expected Impact**
- Innovation in environmental health sciences, in particular for exposure assessments and data management
- Enable researchers and policy makers to continuously include new knowledge in the policy making processes by using the toolbox to generate data and information
- Better predict disease risk by acquisition of new knowledge on the influence of external exposures on biological pathways at different life-stages

**Practical aspects**
- Research and Innovation action, 50M€ - 8-12M€/proposal
- Open data pilot
- International collaboration welcomed!
- Collaboration agreement agreement between successful proposals
CALL – Digital transformation in Health and Care

- Better access to healthcare and sustainability of health and care systems
- Empower the citizens and transformation of health and care services
- eHealth and mHealth
- ICT for Active and Health Ageing

**IMPACT:** To maximise the potential of the digital economy in the health and care sectors

**POLICY DRIVERS + SUPPORT FOR:**

- [Connected Digital Single Market](#)
- [European Cloud Initiative](#)
- [European Free Flow of Data initiative](#)
- [Silver Economy initiative](#)
DTH-01-2019: Big data and Artificial Intelligence for monitoring health status and quality of life after the cancer treatment

**Scope**
Research on how to better acquire, manage, share, model, process and exploit big data to monitor health status of individuals and improve quality of life after the cancer treatment

**Expected impact**
- Mapping comprehensive big data in a reachable and manageable way (for sharing and reusability). Creating a network of knowledge by linking heterogeneous data sources
- Data driven analytics/simulation methods for forecasts of trajectories
- Prevent or timely address development of new medical conditions and improve the quality of life and the patient counselling.
- Evidence for policy strategies.

Research and Innovation action, 35 M€ - 3-5M€/proposal
DTH-05-2019: Large scale implementation of digital innovation for health and care in an ageing society

**Scope**

- Large-scale deployment of digital health and care solutions across different regions in Europe
- Specify, purchase and deploy ICT based solutions for active and healthy ageing
- Contribute to the Scaling-Up Strategy of the European Innovation Partnership on Active and Healthy Ageing
- Engage public and/or private procurers that have responsibilities and budget control in the relevant area of care

**Expected impact**

- Awareness on the successful use of public procurement to boost ICT innovation
- Addressing potential barriers (regulatory and other)
- Concerted public-sector investment strategies

Public Procurement of Innovative solutions, 10 M€ - 2-5M€/proposal
DTH-09-2019: Scaling up the univocal Identification of Medicinal Products

Scope
- Foster the use and dissemination of the IDMP standards set to support the cross-border mobility of European patients by offering safer eDispensations across borders
- Support the standards implementation in national sources (and its possible linkage to a central EMA database) to allow the identification of locally available equivalent medicinal products and ensuring EU SPOR data can be safely used by the ePrescription/eDispensing systems
- Support integration with existing cross-border ePrescription services

Expected impact
- Improved quality of care resulting in enhanced patient safety; Extend the healthcare service provision continuum across borders for patients
- Better address adverse events/effects and safety issues by enhanced development of standard vocabulary
- Better health data access across Europe for patients and healthcare providers

Innovation action, 19 M€ – 5-8 M€/proposal
**DTH-10-2019-2020: Digital health and care services**

**Scope**
- Support the health and care service provider to procure the development and testing of digital services and processes that can facilitate the transition to integrated care models across health and social services and country-specific cross-institutional set-ups, including decentralised procurement environments.
- Address key challenges like patient empowerment, self-management and safety, chronic disease management, diagnosing, hospital logistics, skills and independent living by applicable ICT domains e.g., telemedicine, mHealth, IoT, shared open source IT-based platforms,
- Early adoption and demonstration of the potential for scaling-up

**Expected impact**
- Established path to innovation, improved user and market engagement, strengthened procurement community, evidence of healthy innovation ecosystem
- Increased opportunities for solution uptake across wider international procurement markets by aiming at interoperable solutions across Europe

Pre-Commercial Procurement, 22 M€ – 5-6 M€/proposal
DTH-11-2019: Large Scale pilots of personalised & outcome based integrated care

**Scope**
- Large-scale pilots for deployment of trusted and personalised digital solutions dealing with Integrated Care
- Ensuring secure and efficient sharing and processing of all data and information involved in the supply chain
- Flexibility and replicability of service delivery patterns to combine personalization and large scale adoption of services
- Improvement of quality of life for patients and also of working conditions of all health care and social care providers
- Efficiency gains in terms of resource utilization and coordination of care

**Expected impact**
- Progress towards a common vision of technical prerequisites and framework to ensure users trust with regard to health and social data and information in IT supported environment
- Contribute to an evidence-based minimum data set (clerical and clinical) on key points of integrated care pathway
- Harmonisation, certification, approval labelling, reliable identification of adequate solutions, replicable business models for IT

Innovation action, 20 M€ – 4-6 M€/proposal
HCC-02-2019: Support for the large scale uptake of open service platforms in the Active and Healthy Ageing domain

Scope

- Analyse the use of open service platforms (OP) in the AHA domain, covering both open platforms and partly-open/proprietary platforms developed by industry, and also interactions between platforms.
- Study the use of OPs by collecting and processing data from running and recently ended projects – including EU- and initiatives that use the referred platforms, with special focus on UniversAAL and Fiware.
- Develop and implement a methodology that monitors OP development, adoption and spread across Europe with relevant KPI’s, factors that support or hinder the uptake of open platforms in Europe.

Impact

- Identification of the critical success factors of OP development, deployment, and spread;
- Evidence for the socioeconomic benefit of open service platforms;
- Engagement of required stakeholders to ensure data reliability;
- Increased knowledge on the differences and synergies between open platforms regarding features and their interoperability on different levels (data / information / applications / services).

Coordination and support action, 1,5 M€ - Up to 1,5 M€/proposal.
CALL – Trusted digital solutions and Cybersecurity in Health and Care

- Multidisciplinary technologies and solutions in health and care with a focus on cybersecurity
- Secure and user-driven ICT-based solutions in early risk detection and interventions
- Aggregation of a variety of new and existing data sources

FOCUS AREAS:
Digitising and transforming European industry and services
Boosting the effectiveness of the Security Union

POLICY DRIVERS + SUPPORT FOR:

- Connected Digital Single Market
- Big Data in healthcare
- European Data Protection Regulation
Scope
Pilots to build on open platforms, standardised ontologies, APIs and results from IoT-based smart living environments, service robotics and smart wearable & portable systems;

- Intelligent and personalised solutions for sustaining and extending healthy and independent living support to older individuals at risk of temporary or permanently reduced functionality and capabilities;

OR

- Personalised early risk detection and intervention Innovative solutions for prevention and treatments based on early risk detection for people facing increased health and social risks

Expected impact
- European-led platforms for smart and healthy and independent living at home;

- Improved quality of life and health status for involved users and carers, with demonstrated added-value of underlying technologies

Innovation action, 60 M€ – 15-20 M€/proposal (SC1-ICT-LEIT)
Call deadlines
Better Health and care, economic growth and sustainable
health systems

BHC + HCO call topics

Calls open: 26 July 2018

1st stage call closes: 2 October 2018

Single-stage and 2\textsuperscript{nd} stage calls close: 16 April 2019
Call deadlines
Digital transformation in Health and Care
Trusted digital solutions and Cybersecurity in Health and Care

DTH and HCC call topics

Calls open: 16 October 2018
Calls close: 24 April 2019

*DTH-10-2019
TDS call
Calls open: 26 July 2018
Calls close: 14 November 2018
More information @

• Health Research  
  http://ec.europa.eu/research/health

• Work Programme SC 1 – pre-published update for 2019 topics -  
  http://europa.eu/!Nu37nd

• Health National Contact Points:  
  http://www.healthncp.net/

• Expert registration  
  http://europa.eu/!DT67yB

• Documents  
  http://europa.eu/!GN67RT

• FAQs:  http://europa.eu/!KJ94cg

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Thank you!