framework established cannot simply be replaced without significant disruption, given the top-quality, long-term expertise and wide coverage of the beneficiaries comprising this consortium.

The additional activities to be performed by applicants under this topic should consist of several of the following:

- Organisation of activities or tools according to their expertise and interests, e.g.:
    - Personalised Medicine (PM) Innovation related activities and tools, business and entrepreneur relations and support, case studies and guides.
    - PM public health and social care, people's engagement, activities to support health system's ability to turn scientific discoveries into new or improved treatments and services, support the scientific community to tackle complex health and social care challenges, international outreach.
    - PM and diversity, underrepresented populations, gender aspects, health data and knowledge mobilisation activities, PM and rare diseases.
    - PM related genomics, expert and societal exchange on genomics, opportunities by genomics for innovations and economic growth.
- Contribution to the design and implementation of the specific topics and features of the Transnational Joint Calls as of 2026 to which new partners will contribute national commitments.
- Specific, tailored contributions to other EP PerMed calls such as: Fast Track, Venture Creation Programme, Networking, Twinning calls, Call for surveys, Education calls, etc.
- Organisation of specific EP PerMed events, such as in-situ visits (Work Package 5 - WP5), summer schools (WP3/4).
- Contribution to the development and dissemination of strategic documents in additional geographical areas, for example the Strategic Research and Innovation Agenda (SRIA) updates.
- Development and implementation of other new PM tailored activities within the related WPs.

HORIZON-HLTH-2027-01-CARE-02: Personalised approaches to reduce risks from Adverse Drug Reactions due to administration of multiple medications

Call: Cluster 1 - Health (Single stage - 2027/1)
Specific conditions

Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 8.00 and 10.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 38.00 million.
Type of Action	Research and Innovation Actions
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply: In recognition of the opening of the US National Institutes of Health's programmes to European researchers, any legal entity established in the United States of America is eligible to receive Union funding. If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used). Subject to restrictions for the protection of European communication networks.
Award criteria	The criteria are described in General Annex D. The following exceptions apply: The thresholds for each criterion will be 4 (Excellence), 4 (Impact) and 4 (Implementation). The cumulative threshold will be 12.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: The granting authority may, up to 4 years after the end of the action, object to a transfer of ownership or to the exclusive licensing of results, as set out in the specific provision of Annex 5.

Expected Outcome: This topic aims at supporting activities that are enabling or contributing to one or several expected impacts of destination "Ensuring equal access to innovative, sustainable, and high-quality healthcare". To that end, proposals under this topic should aim to deliver results that are directed at, tailored towards and contributing to all the following expected outcomes:

- Patients benefit from decreased incidence of Adverse Drug Reactions (ADRs) caused by the administration of multiple medications (three or more medicinal products[341]) and enhanced health outcomes by ensuring safer and more effective use of medication.

341 https://www.ema.europa.eu/en/glossary-terms/medicinal-product

- Healthcare professionals can adopt adverse drug reactions prevention and reduction strategies to integrate genetic and other biomarker information into clinical decision-making to optimise the use of medication, especially in situations of comorbidities.

- Healthcare systems benefit from cost savings thanks to reduced hospital admissions and other costs associated with ADRs related to the intake of multiple medicines.

- Clinical and regulatory guidelines and policies for medication management in case of multiple medications can be revised supported by robust evidence.

- Educational programs for healthcare providers and patients benefit from improved awareness and management of polypharmacy and ADRs.

Scope: While medicinal products contribute considerably to the health of EU citizens, they can also have adverse reactions. It is estimated that around 5% of all hospital deaths are due to an adverse drug reaction. On average, 16% of hospitalised older[342] patients experience significant ADRs, varying in severity and mostly preventable, with commonly prescribed drug classes (such as diuretics, anti-bacterials, antithrombotic agents, analgesics, antineoplastics, etc.) accounting for most ADRs[343]. Overall, ADRs increase morbidity, mortality, hospitalisations, and healthcare costs.

ADRs from multiple medications contribute significantly to healthcare costs due to increased hospitalisations and treatments, making this an area of focus to achieve cost efficiency.

Initial failure to recognise ADRs can generate inappropriate prescription cascades, in which the side effects of drugs are misdiagnosed as symptoms of new problems, resulting in further prescriptions and further side effects that tend to accumulate, confusing and complicating the diagnostic while aggravating the evolution. Therefore, there is a distinct need for research to help identify and prevent such prescription cascades, possibly by maximising the use of technology, as well as to improve multiple drug management in order to reduce patient harm. Furthermore, it is also possible that aside from the ADRs specific to individual drugs taken in combination, new ADRs can emerge as results from the drug combinations themselves.

Research activities under this topic should make use of the constantly improving health technologies and data analytics that provide new opportunities to address these issues more effectively, by better integrating medication management into healthcare practices, including into Electronic Health Records (EHR) and decision support systems.

Identifying and validating relevant biomarkers for better patient stratification can contribute to significantly decreasing the risk of adverse drug reactions. Biomarkers can also help to detect adverse drug reactions early before occurrence of clinical symptoms and enable early countermeasures. Generating knowledge on the interaction and complexity of biochemical

342 Old age is often defined as starting around 60 or 65 years of age.

343 Emma L. M. Jennings et al., In-hospital adverse drug reactions in older adults; prevalence, presentation and associated drugs - a systematic review and meta-analysis, Age and Ageing 2020; 49: 948-958 doi: 10.1093/ageing/afaa188

pathways can improve the understanding of patients' response to ADRs and thus provide better tailored treatments and early responses to adverse reactions.

For this purpose, any biomedical strategy that allows a better stratification of patients to identify drug response patterns in well-defined patient groups could be used, including in-vitro or in-silico models for adverse drug reactions, imaging biomarkers, drug-drug/drug-gene/drug-food interactions, therapeutic dose reduction and pharmaco-exposomics, nutrition and beverage interference, smoking, vaping, pollution etc. De-escalation studies in view of improving multiple drug management can be also considered. Proposals should be sufficiently robust to examine differences across various populations, and also consider sex difference in drug reactions.

The further use of results generated by the projects funded under this topic should be ensured through data sharing with the relevant stakeholders and the European Medicines Agency (EMA), in view of possible adoption of deprescribing or adjusted-prescribing guidelines by relevant authorities at EU and national levels.

Where applicable, applicants are strongly encouraged to follow all relevant guidelines in the relevant scientific fields, including but not limited to:

- Joint EMA/Heads of Medicines Agencies (HMA)/EC Workshop recommendations on pharmacogenomics in medicines regulation and on implementation into clinical practice[344].
- Pharmaceutical development of medicines for use in the older population, Scientific guideline from the EMA[345].
- Guidelines from the Clinical Pharmacogenetics Implementation Consortium (‘CPIC guidelines’)[346].

Proposals funded under this topic should address all the following aspects:

- Leverage the role of pharmacogenomics, pharmacokinetics and pharmacodynamics in predicting and preventing adverse drug reactions in situations of multiple medications (three or more drugs administered concomitantly), and propose personalised medicine approaches, such as targeted therapies and biomarker-driven treatment strategies, to reduce the rate of adverse drug reactions and limit multiple medications.
- Maximise the use of technology, such as electronic health records, artificial intelligence and clinical decision support systems, to support safe medication use and prevent adverse drug reactions.

344 https://www.ema.europa.eu/en/documents/report/report-joint-ec-hma-ema-multi-stakeholder-workshop-pharmacogenomics-24-september-2024_en.pdf
345 https://www.ema.europa.eu/en/pharmaceutical-development-medicines-use-older-population-scientific-guideline
346 https://cpicpgx.org/guidelines

- Address the ethical, regulatory, and implementation challenges associated with integrating personalised medicine into clinical practice to address adverse drug reactions due to the administration of multiple medications.

- Generate evidence on the clinical utility and cost-effectiveness of treatment guided by pharmacogenomics and other relevant biomarkers-based approach, for single drugs and for combinations of drugs.

- Develop and implement strategies, including regulatory science approaches, for efficient integration of project results into daily healthcare.

- Align with similar work in other EU-funded projects or partnerships, such as the co-funded European Partnership for Personalised Medicine[347], the co-funded European Partnership on Transforming Health and Care System[348] etc. while avoiding any potential overlaps.

The participation of start-ups, micro, small and medium-sized enterprises (SMEs) [349] is encouraged with the aim of strengthening their scientific and technological foundations, enhancing their innovation potential, and exploring possibilities for commercial exploitation.

Applicants should provide details of their clinical studies[350] in the dedicated annex using the template provided in the submission system. As proposals under this topic are expected to include clinical studies, the use of the template is strongly encouraged.

347 https://cordis.europa.eu/project/id/101137129, https://www.eppermed.eu
348 https://cordis.europa.eu/project/id/101095654, https://www.thcspartnership.eu
349 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32003H0361
350 Please note that the definition of clinical studies (see introduction to this Work Programme part) is broad and it is recommended that you review it thoroughly before submitting your application.