

## How Personalised Medicine has transformed healthcare by 2030 – The ICPerMed vision

The International Consortium for Personalised Medicine (ICPerMed) outlined a vision of how Personalised Medicine (PM) will lead to the next generation of healthcare by 2030. The vision asserts PM as a **medical practice centred on the individual's characteristics, leading to improved effectiveness in diagnostics, treatment and prevention, added economic value and equitable access for all citizens**. Therefore five different perspectives need to be taken into account:

1. Informed, empowered, engaged and responsible **citizens** have control over their health-related data and can access reliable and understandable sources of medical information easily.
2. Informed, empowered and engaged **health providers** with well-educated multidisciplinary teams keep up with the rapid development in PM solutions and use health information and research results safely and responsibly.
3. **Healthcare systems** enable personally tailored and optimised health promotion, prevention, diagnosis and treatment for the benefit of patients by giving equitable access to PM services to all citizens.
4. **Available health related information** for optimised treatment, care, prevention and research is provided when needed. Data privacy, safety, and security are applied in health-data management. Optimised treatment and prevention based on personalised profiles benefit citizens and patients, while minimising costs and risks.
5. **Economic value** is established by innovative medicine, being based on appropriate business concepts, creating new jobs in healthcare systems and taking into account telemedicine and mobile solutions.

Furthermore, four pillars representing transversal issues are crucial for the successful implementation of PM research in all perspectives. These pillars include e.g. the following aspects:

1. **Data and technology:** By 2030, citizens are more empowered to control their health data and can rely on adequate regulatory frameworks and data management protocols for protection of personal rights. Comprehensive personal health data is available through electronic health records. Wearable devices and apps are widely used.
2. **Inter-sectoral synergies:** Strong synergies between healthcare and research are crucial for the application of PM. Large volumes of healthcare data provide a rich source for research, allowing patient stratification and the definition of individual profiles.
3. **Healthcare systems reforms:** By 2030, the primary focus has shifted from treatment to risk definition, tailored treatments, personalised health promotion and disease prevention strategies.
4. **Education and literacy:** Major changes in medical and other healthcare provider curricula (e.g. pharmacists, nurses, and therapists) resulted in a new generation of informed, empowered, engaged, and responsible healthcare providers. For the citizen, health data education and literacy on PM, including ethical issues, regulations, and data control is provided through schools and specific literacy programs.

The implementation of the described perspectives into practice allows access to valuable data sets for research. This allows the development of new innovative therapy, diagnostic and prevention approaches as well as new health care concepts. For citizens, the translation of PM means better and fairer health care, access to modern treatment methods, improved control of their own health data with secure data protection as well as more jobs in the health sector.

PM is not so much a paradigm change but the evolution of medicine in a biotechnology and data-rich era. This development requires extensive adjustments in the way healthcare is provided, including new skills for healthcare professionals, and novel tools for delivery.

 [The ICPerMed vision was published in its full detail as a white paper, available online.](#)

ICPerMed supports coordinated research directed at the progressive implementation of PM, and has previously developed an Action Plan, defining research activities to stimulate PM adoption in healthcare. Leveraging the Action Plan, ICPerMed members have been successful in establishing PM research and healthcare programs and actions in their own countries and regions. The European Commission already supports many initiatives consistent with the presented vision and, together with ICPerMed, is committed to expanding its efforts globally. The perspectives and transversal issues can further orientate policy makers and guide the healthcare community when planning future programs and activities for PM implementation. ICPerMed will continue to act as a communication platform for existing and future initiatives and organisations related to PM, paving the way towards this vision of PM in 2030.