

Digital medication management: a strategic health-system investment for Europe under the 2028-2034 MFF

The health-system challenge

European health systems are under growing pressure to improve patient safety, address workforce shortages, strengthen resilience and make better use of limited resources. Medication management is one area where these pressures converge.

Within hospitals, medicines pass through **complex processes involving ordering, storage, inventory management, dispensing, administration, documentation and control**. Yet many of these processes **continue to depend on manual activities, fragmented workflows and decentralised inventories** with limited real-time visibility. This creates inefficiencies, increases workload for healthcare professionals and makes it more difficult to manage medicines effectively across healthcare organisations.

Many hospitals have digitalised parts of this pathway and addressed some of the gaps, **but implementation remains uneven**. A hospital may use an electronic prescribing system while relying on manual stock checks, separate dispensing records or local spreadsheets for inventory. These partial solutions can improve individual tasks without creating a complete view of how medicines move through the organisation. **The consequences include avoidable workload, delays in identifying expiry or shortage risks, and limited information for planning and redistribution.**

These weaknesses matter because European health systems are already operating under sustained workforce pressure. The EU is facing an **estimated shortage of 1.2 million doctors, nurses and midwives as of 2022¹**. Addressing this challenge will **require** increasing and retaining the health workforce, as well as **making better use of existing professional capacity, including through innovation and technology**. Against this backdrop, time spent by healthcare professionals on repetitive logistics and documentation represents more than an operational cost: it consumes scarce workforce capacity that could otherwise be dedicated to patient care.

These gaps become **even more serious during supply disruption or a health emergency**. Authorities need to know what medicines are available, where they are held, how quickly stocks are changing and whether they can be moved across facilities or borders. **Stockpiles cannot support preparedness effectively if the underlying systems provide incomplete or delayed information.**

¹ OECD/European Commission (2024), *Health at a Glance: Europe 2024: State of Health in the EU Cycle*, OECD Publishing, Paris, <https://doi.org/10.1787/b3704e14-en>.

Digitalising medication management, therefore, represents more than an opportunity to modernise individual hospital processes. It should be treated as a practical health-system investment that can improve patient safety, relieve avoidable pressure on health professionals and provide a more reliable view of medicines in routine care and during emergencies.

A digitally connected medicines pathway

Digital and automated medication management can provide health organisations with greater visibility, traceability and control across the medication pathway.

Through interoperable digital and automated systems, healthcare organisations can improve real-time information on stock levels at hospital level and enable aggregated visibility of medicine inventories at regional, national level and EU level, as well as medicine locations, consumption, expiry dates and lot numbers; strengthen secure access and traceability; optimise inventories; and connect medication-management processes with electronic prescribing, pharmacy information systems, barcode technologies and analytics platforms.

The value of automated medicines management extends beyond one department or one type of technology: better traceability can support safer administration, more accurate inventory data can reduce unnecessary stock and identify products approaching expiry, automated handling can release staff time for clinical and pharmacy work. These gains reinforce each other when the relevant systems are integrated, and staff are involved in redesigning the process.

The funding and adoption gap

Recent European economic modelling² illustrates **the potential economic value of investing across the medication-management pathway**. The study assessed five digital and automated technologies – inventory robots, unit-dose systems, automated dispensing cabinets, smart-pump drug error reduction systems and oncology medication traceability – and estimated **substantial combined annual savings** from their full implementation across European health systems.

These benefits extend beyond direct economic savings. Medication wastage represents a significant source of avoidable cost and inefficient use of healthcare resources. In the EU27 alone, **an estimated investment of approximately €2.21 billion in inventory robots and automated dispensing cabinets could generate approximately €995.9 million in combined annual savings. These include approximately €452.8 million from reductions in medication wastage, €125 million from lower medication inventory costs and €190 million from healthcare workforce efficiency gains.** This illustrates how investment in digital medication management can contribute simultaneously to health-system efficiency, workforce capacity and the more sustainable use of medicines.

² Orsini, F.F.; Bellavia, D.; Schettini, F.; Foglia, E. The Impact of Automation and Digitalization in Hospital Medication Management: Economic Analysis in the European Countries. *Healthcare* 2025, 13, 1604.
<https://doi.org/10.3390/healthcare13131604>

A positive economic case, however, does not remove the practical barriers to investment. Costs arise at the beginning of a project and usually fall on hospitals, regions or national health services. Implementation also involves more than purchasing equipment or software. Hospitals must connect systems, agree data and interoperability requirements, protect infrastructure against cyber risks, adapt clinical workflows and train staff. Smaller providers and regions with limited capital budgets can struggle to move beyond pilots, even when the clinical and operational rationale is strong. **Public investment should therefore cover the complete implementation pathway** from underlying infrastructure and interfaces, organisational change and training and cybersecurity.

Investing in the digitalisation of medication management can contribute to several European priorities:

- **Patient safety:** stronger traceability, secure access and digital control can reduce risks associated with fragmented and manual medication processes.
- **Workforce productivity:** automation of repetitive medication-management activities can release healthcare professional time for higher-value clinical activities.
- **Preparedness and resilience:** real-time medicines visibility can support shortage management, redistribution, stockpile management and continuity of care.
- **Security of supply:** better hospital-level information can strengthen the data available for medicines monitoring and resilience policies.
- **Efficiency and sustainability:** improved inventory management can reduce excess stock, expired medicines, unnecessary procurement and medication waste.

Public funding can close the adoption gap by linking successful development and demonstration with sustained investment in large scale deployment across hospitals and health systems.

The MFF 2028–2034 investment opportunity

The Commission's proposal for the 2028–2034 MFF brings together instruments that can support successive stages of medication management innovation, scale and adoption.

Throughout the interinstitutional negotiations on the MFF, it will be essential to ensure that health-system digitalisation remains a visible priority and is eligible for support across the full investment pathway. EHMA considers it instrumental to:

- **Continue investment in innovation through FP10.** Health research should continue to support state-of-the-art innovation. Funded projects should produce evidence and standards that make successful solutions easier to implement across different health systems.
- **Create a clear public health route within the European Competitiveness Fund.** The Fund can provide the bridge from validated innovation to scale-up and uptake. In the current proposal, health is part of a combined health, biotech, agriculture and bioeconomy window, while EU4Health is integrated into the new architecture. The final framework should retain a clear public health objective, visible funding and explicit eligibility for health-system deployment.

- **Use National and Regional Partnership Plans for deployment at scale.** The largest investments will be made by Member States, regions and health providers. Governments have the opportunity to include automated medicines management among the health and digital priorities in their Plans. Funding should cover infrastructure, system integration, workforce training, cybersecurity, with regional and local involvement in the design and delivery of investments.
- **Link stock visibility to civil protection and health preparedness.** The proposed Union Civil Protection Mechanism and health emergency preparedness instrument can improve access to medical countermeasures and coordination across Member States. Its work programmes could support interoperable stock visibility, traceability, logistics and redistribution systems that connect national capacity with EU and cross-border response.

An integrated funding continuum and a coherent approach across all European funding instruments would allow Europe to continue developing advanced solutions while ensuring that patients, professionals and health systems can benefit from their full roll-out.

A call to action

EHMA calls on the European Parliament, the European Commission, and Member States to:

- **Support a coherent funding route from research to large scale implementation** of digital health solutions that can improve the ways medicines are managed in Europe.
- **Recognise automated medication management as a health system investment** that contributes to patient safety, workforce capacity, efficient use of medicines and resilience.
- **Protect the public health dimension of the European Competitiveness Fund and make the adoption of proven health solutions an explicit part of its purpose.**
- Encourage Member States and regions to prioritise deployment of digital solutions for medication management through their **National and Regional Partnership Plans**.
- **Include medicines visibility and stock management in preparedness funding** so that national, European and cross-border response is supported by timely and reliable information.

Investment should remain technology-neutral and focused on the health system capabilities and outcomes to be achieved, while enabling the deployment of proven technologies including pharmacy automation, automated dispensing systems, digital inventory and traceability solutions, interoperable medication repositories and associated digital infrastructure and services.

The MFF 2028–2034 provides an unrivalled opportunity to move beyond isolated digitalisation initiatives towards systematic implementation and scaling of digital health solutions across Europe.