EVENT REPORT

Strategic investments: leveraging EU funding for the digital transformation of hospital settings

Tuesday, 18 November 2025

Background

This webinar examined how digitalising and automating hospital medication management pathways can improve patient safety, strengthen supply chain resilience and reduce operational burdens on clinical staff. Bringing together EU policymakers, hospital pharmacists and managers, national authorities, and industry experts, the discussion highlighted priority areas for investment to scale digital infrastructure, interoperability and workforce capacity. Speakers noted that despite major EU investments in digital health, funding remains focused on data-sharing systems rather than operational components such as real-time inventory traceability, automated dispensing, unit-dose systems and predictive tools for shortages. As a result, hospitals continue to manage high-risk processes with limited technological support and fragmented procurement models.

Discussion summary

Welcome and introduction I Ms Federica Margheri, EHMA Executive Director, opened the webinar by highlighting the urgent need to digitalise medication management pathways across European hospitals to improve patient safety, reduce medication errors, strengthen operational efficiency and support healthcare professionals' wellbeing. She acknowledged Beckton-Dickinson (BD)'s longstanding support in advancing this work and noted that digitalisation remains a critical yet often overlooked element in broader health system modernisation efforts. She explained that the purpose of the webinar was to present available EU and national funding mechanisms, showcase practical examples from Member States and explore how investments can support the digital transformation of hospitals. The programme included case studies from Ireland and Italy, evidence from recent research and interventions from key EU policymakers.

What investments are required to digitalise medication management in Europe? Are they profitable? I Dr Daniele Bellavia, Research Fellow at the School of Management Engineering at Carlo Cattaneo LIUC University presented findings from a large-scale economic assessment evaluating the profitability and long-term impact of automating and digitalising hospital medication management across Europe. He explained that despite evidence showing digitalisation can reduce medication errors by 50–100%, adoption remains limited due to high upfront investment costs and competing resource pressures. The study aimed to provide robust economic evidence to support decision-making by analysing five key technologies: inventory robots, unit dose systems, automated dispensing cabinets, smart infusion pumps, and oncology traceability platforms, across 27 EU countries (plus the UK), over a 10-year timeframe.

Using a model based on a standardised 561-bed hospital and country-specific variables such as labour costs and drug prices, the analysis evaluated four primary cost drivers: staff time savings, reduced drug wastage, optimised inventory levels, and fewer medication errors. Results showed positive return on investment across all technologies, with particularly strong performance for inventory robots and oncology traceability systems, due to high medication volumes and the high cost of oncology drugs. Payback periods ranged between two and seven years, shortest for inventory robots and longest for automated dispensing cabinets, despite the latter still demonstrating overall economic viability. Overall, the study estimated over €3 billion in required investment across Europe, yielding €1.8 billion in annual savings and a 10-year ROI of 167%, supported by sensitivity analyses confirming the robustness of results. Prof. Bellavia concluded that although initial investments are significant, they are financially justified and improve patient safety and care quality, making a strong case for accelerating digitalisation of medication pathways in hospitals.

The European Parliament's work on the European Health Data Space and the Critical Medicines Alliance I MEP Tomislav Sokol, Member of European Parliament focused on two major EU policy priorities: the implementation of the European Health Data Space (EHDS) and the Critical Medicines Act (CMA). He emphasised that while EHDS has been politically adopted, its success now depends on a five to six-year implementation phase requiring extensive preparation of healthcare systems, digital infrastructure, health workforce training and clear communication to patients. He warned that if the transition is implemented without adequate preparation, it could face strong opposition, due to the scale of change in how healthcare data is organised and governed. He stressed the importance of preparing healthcare professionals to handle digital records and ensuring patients understand their rights, including controlling access to parts of their health data and opting out of secondary use. For secondary use specifically, he noted strong safeguards to prevent data misuse, including restricted purposes and use of anonymised or pseudonymised data. On financing, he expressed concern over the proposed EU budget, noting that the EU4Health programme has been dissolved into broader funding envelopes without ring-fencing. He argued that protected health funding is essential for successful EHDS implementation.

Turning to the Critical Medicines Act, he described its two main goals: strengthening EU strategic autonomy by reducing dependence on non-EU pharmaceutical manufacturing and ensuring equal access to medicines across Member States. He outlined proposed mechanisms, including preferential procurement for medicines manufactured in Europe, designation of strategic projects with faster permitting, joint procurement, mandatory redistribution of stock in case of shortages, and coordinated EU-level stock management. He positioned these reforms as vital to preventing future supply crises and maintaining Europe's competitiveness and security. He concluded by noting scheduling constraints and left the webinar, thanking participants and expressing interest in the event's outcomes.

Development and impact of an intelligent cockpit to manage and anticipate drug shortages in hospitals: a before-and-after study I Mr Yassine Dhif, Specialist Hospital Pharmacist at the University Hospital Geneva presented his research on developing a smart dashboard to anticipate and manage drug shortages within hospitals. He explained that drug shortages rose by 50% between 2019 and 2023 due to pandemic pressures, geopolitics and global supply chain disruptions. To address this, his team created a system integrating clinical prescription data, automated drug cabinet data, ERP data, and real-time stock levels into a unified data lake. The dashboard categorises medicines by criticality (from life-saving antidotes to low-urgency drugs),

forecasts shortages based on consumption trends, highlights alternative options and automates alerts for low stock, delayed supplier deliveries, expired products, or sudden increases in use.

The system enables pharmacists to identify shortages early, locate stock across hospital wards, shift supplies internally, and propose therapeutic alternatives. A before-and-after study showed a 57% reduction in shortages and a 25% reduction in time spent managing them. Dhif also described a national platform enabling hospitals and suppliers to share shortage data, classify alternatives and contribute to a reliability index for manufacturers. He concluded that digital tools significantly improve anticipation, coordination and management of shortages, a growing challenge given longer shortage duration and lack of alternatives for many drugs.

Medication shortages and digitalisation of medication management: Assessing national-level capacity to provide data on hospitals' medication inventories I Ms Eleonora Varntoumian, EHMA Policy Manager presented work from EHMA and EPACT - The Alliance for the digitalisation of hospital medication pathways in Europe, to improve patient safety, reduce shortages and support efficient supply chain operations. She emphasised that shortages have increased significantly in Europe, particularly affecting generic medicines, and that manual stock tracking systems create delays, hinder batch recalls and prevent accurate forecasting. She contrasted manual versus digital systems, highlighting improvements such as real-time inventory visibility, demand prediction, expiry tracking and integrated procurement and clinical data.

She then reviewed relevant EU policy initiatives, including the Digital Europe Programme, the European Health Data Space, the Pharmaceutical Strategy for Europe and the Critical Medicines Act, noting that digitalisation must be embedded into their implementation. Eleonora presented findings from a joint survey with the European Medicines Agency involving national competent authorities and hospital pharmacists across 16 countries. Results showed limited hospital readiness during COVID-19, heavy reliance on manual processes, inconsistent data sharing with regulators and significant staff time required to collect stock data. Most hospitals lack interoperable systems to meet upcoming EU monitoring obligations. She concluded with a call to action to harmonise legislation and include digitalisation explicitly, fund national deployment of digital systems, develop interoperable IT infrastructures and scale tools that enable hospitals to report real-time inventory data to regulators.

The European Commission's work on the European Health Data Space and the EU4Health programme I Mr Ole Norberg Gjerrestad, Policy Officer at the European Commission, presented the implementation of the European Health Data Space, focusing on data interoperability, patient rights and regulatory requirements for electronic health record systems. He explained that EHDS covers both primary use (data for direct care) and secondary use (data for research and public interest), with obligations for Member States to ensure patient access to their data across borders, including prescriptions, dispensations, summaries, imaging, test results and discharge reports.

A key element is the European Electronic Health Record Exchange Format, which standardises how data is structured and transferred across systems. Mr Gjerrestad highlighted that EHDS introduces CE-marking requirements for Electronic Health Record (HER) systems to ensure interoperability. Many systems not traditionally classified as EHRs may fall under scope. He described ongoing work through joint actions with Member States to define clinical terminology, data elements, coding systems and compliance models. On secondary use, he outlined governance mechanisms, safeguards including anonymisation/

pseudonymisation and infrastructure that will streamline applications for access across multiple countries. He noted that EU4Health will fund cross-border digital infrastructure, while Member States will finance national implementation. He concluded that although systems are fragmented today, the existing MyHealth@EU network shows interoperability is feasible and provides the foundation for scaling EHDS.

Digitising Cancer Care in Ireland with NCIS I Mr Grant Caroll, Chief Pharmacist at the National Cancer Information System, presented Ireland's National Cancer Information System (NCIS), a digital platform enabling unified cancer care records across all public hospitals delivering systemic therapy. He described Ireland's cancer network of nine cancer centres and 26 treatment hospitals, where paper records historically caused fragmented documentation, delays, manual communication and risks to care continuity. NCIS provides a single national patient record, accessible across sites, ensuring clinicians have an accurate treatment history regardless of location, enabling seamless transfers between hospitals. The system integrates multidisciplinary meetings, prescribing, pharmacy verification, preparation and barcode administration into one workflow. It is supported by three components: C37 for documentation and multidisciplinary teams, BD Cato for medication management and a national master patient index linking all hospitals. Standardisation is a core design principle: national drug files, standard regimen libraries, unified assessment templates and centralised configuration ensure consistent workflows nationwide. Over half a million digital prescriptions have been administered, 95% using standardised regimens, improving safety, calculation accuracy and auditability. Carroll emphasised that NCIS is not just an IT tool but a redesigned clinical workflow requiring strong clinician engagement. He described efficiencies such as reduced phone/fax communication, improved treatment planning, and seamless transfer of patients too unwell to travel, demonstrating tangible clinical benefits. He framed NCIS as foundational infrastructure for Ireland's broader digital health strategy.

SIFO perspective on Italy's approach to EU funding for hospital digitalisation, the regional policy landscape, and innovative practices in drug management I Dr Alessandra Mecozzi, Board of Governors at SIFO - Italian Society of Hospital Pharmacy presented Italy's digital transformation initiatives in hospital pharmacy, driven by the national Recovery and Resilience Plan. She noted key pressures such as an ageing population, chronic disease burden and regional disparities in healthcare performance. Under Mission 6 of the plan, Italy is investing in telemedicine and digital services to support chronic patients, where hospital pharmacists play a central role through tele-pharmacy, remote consultation, therapy monitoring and integration with community care. She highlighted a project enabling home delivery of hospital-dispensed oral oncology medicines, supported by a digital platform managed by hospital pharmacists and apps for patients and logistics staff. At the national level, digitalisation efforts include expanded drug monitoring registries to support equitable access, full digitalisation of pharmacovigilance reporting systems, and nationwide rollout of electronic health records, aligned with EHDS requirements and CE-marked EHR systems. At the hospital level, investments include automated warehouses, traceability systems, and digital tracking to reduce errors and shortages, with regional examples such as Policlinico Gemelli and San Camillo. Digital tools support procurement, reduce expiry waste, improve safety, and enable real-time coordination across pharmacy and clinical departments. She emphasised that digitalisation facilitates mini-HTA, supports decision-making, strengthens safety monitoring, and positions hospital pharmacists as key actors in bridging clinical practice and supply chain management.

Key takeaways

- **Call to action - For EU institutions**
  - The EU should ensure that digital health investment frameworks extend beyond data-sharing infrastructures to include operational systems that support medication management, inventory traceability, and automation at the hospital level.
  - Future funding programmes, legislative initiatives, and implementation roadmaps should explicitly target these areas, provide ring-fenced financial support, and establish incentives for Member States to deploy interoperable digital solutions.
  - Strengthening Europe's pharmaceutical resilience requires coordinated policy action that links data governance, supply-chain visibility, and real-world deployment.
- **Call to action - For national health authorities & ministries**
  - Member States should accelerate the deployment of interoperable digital systems for medication management across hospitals, supported by national standards, common procurement models, and coordinated implementation plans.
  - Investments should focus on technologies that reduce shortages risk, improve visibility of stocks, and support clinical workflows.
  - Structured collaboration with regulators, hospitals, and industry will be essential to ensure alignment with EU policy frameworks and to leverage available cross-border funding instruments effectively.
- **Call to action - For hospital leaders & healthcare providers**
  - Hospitals should prioritise investment in digital tools that automate high-risk medication processes, including inventory management, unit-dose systems, automated dispensing, and predictive dashboards.
  - Leadership commitment, workforce training, change-management strategies, and interoperability with national systems are critical to ensuring successful deployment.
  - Hospitals should actively participate in national and EU initiatives to harmonise standards and demonstrate value through measurable improvements in patient safety and operational efficiency.
- **Call to action - For industry and technology companies**
  - Technology providers should align product development with emerging EU and national digital health frameworks, ensuring interoperability, regulatory compliance and integration with clinical workflows.
  - Collaboration with hospitals, regulators and national authorities is essential to co-design solutions that address real-world gaps in medication safety and supply chain management.
  - Industry should support evidence-generation, scalable deployment and capacity-building to accelerate adoption and demonstrate return on investment.
- **Call to action - All stakeholders**
  - Cross-sector collaboration is needed to ensure Europe invests not only in health data exchange but also in the operational digital tools that safeguard medication safety and supply continuity.
  - Coordinated policy action, sustained funding, interoperable infrastructure, and a trained workforce are essential to scale proven solutions and deliver better outcomes for patients and health systems.

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