THE PHARMACY OF THE FUTURE

EMBRACING DIGITALISATION AND ONLINE SERVICES

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EUROPEAN ASSOCIATION OF E-PHARMACIES

INTRODUCTION

Pharmacies have long been a cornerstone of healthcare systems, providing essential medications, health advice, and support to patients. The landscape for pharmacies in Europe is undergoing a significant transformation driven by rapid advancements in digital technology. As we stand on the brink of a new era in healthcare, the pharmacy of the future promises to revolutionise how we access and manage our medications. This evolution is reshaping how pharmaceutical care is delivered, making it more efficient, accessible, and patient-centric. The integration of digitalisation and remote pharmacy services stands at the forefront of this change, providing patients with a complementary channel to access healthcare and enhancing the overall healthcare system.

At the heart of this transformation lies the online pharmacy, an innovative force reshaping the landscape of pharmaceutical care. With advancements in digital technology, data integration, e-prescription offerings, telepharmacy,[1] digital medication management and personalised medicine, online pharmacies are poised to become the cornerstone of a more efficient, patient-centric healthcare system.

TELEPHARMACY

Telepharmacy can be defined as a service that includes location-independent communication between authorised pharmacy staff and patients as well as interprofessional consultations with other healthcare professionals within the scope of pharmaceutical activities. Communication takes place by means of electronic media, in particular telephony or video, synchronously or asynchronously. Consultations can also be carried out by appropriately authorised pharmacy staff by means of telepharmacy via a state-of-the-art end-to-end encrypted, synchronous real-time video connection without switching advertisements. The applicable data protection regulations must be complied with. This service is crucial in enhancing medication adherence and managing chronic diseases remotely. In addition, telepharmacy can contribute to increasing the attractiveness of pharmaceutical professions by enhancing flexibility, e.g. by enabling pharmacists to work from home.

As policy-makers chart the future of healthcare, the role of online pharmacies stands out as a critical component in delivering more efficient, accessible, and patient-centered care. The advent of the European Health Data Space (EHDS) and the European Health Union presents a unique opportunity to improve pharmaceutical care through digital innovation, regulatory harmonisation, and cross-border collaboration. This integration not only enhances the safety and efficacy of treatments but also provides a holistic view of one´s health journey. However, much more potential remains untapped. The recent Letta report[2] on the future of the EU single market includes a call to make healthcare the fifth freedom within the single market. This would offer significant opportunities for further cooperation, innovation, and revitalisation of European healthcare.

The pharmacy of the future is not just about convenience; it's about proactive health management. Online platforms will offer teleconsultations, enabling you to consult healthcare professionals from the comfort of your home. Digital health tools will monitor chronic conditions, provide medication reminders, and offer personalised health advice, empowering patients to fully take control of their health. In this future, the role of online pharmacies extends beyond mere dispensing of medications. By fostering collaboration with healthcare providers and leveraging big data insights, online pharmacies will play a pivotal role in advancing medical research and improving public health outcomes.

The pharmacy of the future is a vision of efficiency, accessibility, and personalised care. As we embrace this digital transformation, online pharmacies will lead the charge, ensuring that healthcare is more connected, patient-focused, and responsive to the evolving needs of our communities.

This paper aims to explore the potential of digitalisation in pharmacy services and the future prospects of these innovations while providing a roadmap for overcoming existing challenges to unleash the pharmacy of the future – illustrating the European Association of E-Pharmacies' (EAEP) vision.

With the rapid advancements in technology, there is a pressing need to integrate digital solutions to address challenges in access to healthcare and enhance the overall patient journey.

Dr. Friederike Geiß,
Chair of the EAEP Pharmacy Committee

RECOMMENDATION 1

With a view to ensuring the availability, accessibility, and affordability of healthcare products and services, we encourage decision-makers to **accelerate the uptake of digital health solutions and facilitate the integration of digital tools** (e.g. Artificial Intelligence; digital identity wallets) into pharmacy operations – especially by **putting forward streamlined, innovation-friendly regulations and breaking existing barriers** in patients' access to healthcare digitally, including across borders.

RECOMMENDATION 2

Establishing a level true **level playing field for pharmacies and pharmacists regardless of where their service is offered (online/offline)**. In a digital era, the right of the patients to access remote/digital pharmacy services (e.g. ordering prescription medicines online; accessing telepharmacy services; etc.) must be safeguarded.

RECOMMENDATION 3

Enabling pharmacists to assume more advanced roles. First and foremost, this requires **measures to address the lack of necessary digital skills**, ultimately strengthening the pharmacists' ability to offer healthcare support in the online domain. Secondly, pharmacists should be enabled to take on a **broader role, focusing on advisory services and prevention, unleashing the full potential of the profession**.

RECOMMENDATION 4

Raising the public's awareness of safe and secure digital solutions to access healthcare (e.g. EU Common Logo), contributing to prevent the spread of illegal activities associated with the online pharmacy practice.

THE ROLE OF DIGITALISATION IN PHARMACY

Digitalisation in pharmacy brings about major benefits for patients, pharmacists, and healthcare systems as a whole:

ENHANCING ACCESSIBILITY AND CONVENIENCE

Digitalisation has proven to be able to bridge the gap between patients and pharmaceutical services, ensuring that medications and healthcare support are accessible to all, regardless of geographical location. The integration of telehealth and telepharmacy services will continue to grow, providing comprehensive remote healthcare solutions that include pharmaceutical care as a core component. With the help of safe digital solutions, pharmacies can accommodate the changing needs of patients, by providing tailored services such as consultations, medication delivery, and help with medication taking management.

STREAMLINING OPERATIONS AND REDUCING COSTS

Integrating digital tools into pharmacy operations can streamline various processes, from inventory management to prescription fulfilment. Automated systems can track stock levels, predict demand, and manage supply chains more efficiently, reducing wastage and operational costs. Additionally, e-prescriptions and digital records eliminate the need for paper-based documentation, further enhancing efficiency and reducing the risk of medication errors.[3]

IMPROVING PATIENT SAFETY AND ADHERENCE

By providing accurate and up-to-date information about medications, potential side effects, and drug interactions, digital solutions can enhance patient safety. Furthermore, pharmacies can employ advanced algorithms to monitor patient adherence to prescribed treatments, sending reminders and providing support to ensure that patients follow their medication regimens correctly. This proactive approach can significantly improve health outcomes, reduce hospital readmissions, and tackle non-adherence to prescription medicines which imposes a high cost on European healthcare systems that is estimated at around EUR 125bn a year.[4]

UNLEASHING THE PHARMACY OF THE FUTURE

The pharmacy of the future promises to revolutionise healthcare delivery through digitalisation, artificial intelligence, and advanced data analytics. However, realising this vision requires overcoming significant macro-challenges. Addressing these challenges is crucial for improving patient outcomes, streamlining operations, and enhancing the overall efficiency of the healthcare system – ultimately unleashing the full potential of pharmacy of the future.

AWARENESS-RAISING

Increasingly, we see the need to showcase that digitalisation constitutes part of the solution rather than the problem (e.g. uneven access to medicines across the country due to rural or remote areas; lack of doctors in certain areas leading to absence of pharmacies). However, pharmacies making use of digital solutions (operating digitally/online) still suffer from discriminatory treatment and continuously face misjudgement about the safety of their digital services. It is of utmost importance to underline that all pharmacies, whether online or offline, comply with the same legislation and high standards of safety. **A pharmacy making use of digital solutions is a pharmacy**, regardless of the focus of its activity (online/offline). In this sense, **awareness-raising from both pharmacies and public authorities is necessary** with a view to educating citizens, healthcare professionals (e.g. doctors) and policy-makers.

THE STRENGTHENED ROLE OF PHARMACISTS

Pharmacists are highly qualified to offer a broad spectrum of healthcare services beyond merely dispensing medications. They have the expertise to advise patients on drug and therapy options and provide counselling to help manage health conditions.

Currently, pharmacists dedicate a significant amount of time to dispensing prescription drugs and handling regulatory paperwork — tasks that can be automated. The recent COVID19 pandemic, besides showcasing the great potential of digital solutions, also created an opportunity for pharmacists to play a greater role in delivering practical support to patients, redefining the profession.

In parallel, the rising shortage of healthcare professionals, especially doctors and pharmacists, pose a significant threat to the profession. This shortage is exacerbated by the growing demand for healthcare services due to aging populations and the increasing prevalence of chronic diseases.

Against this backdrop, digital solutions have the potential to offer help to the pharmacist of the future in terms of efficiency, reducing the workload, and minimise manual tasks, freeing up valuable time. Additionally, data and analytics will offer insights into patients' needs and support strategic planning: pharmacies will have the potential to offer personalised digital services by leveraging individual health profiles, genetic information, and lifestyle factors, ultimately tailoring medication plans to meet the specific needs of each patient. **Enabling pharmacists to assume more advanced roles, focusing on patient consultation, advisory services, prevention and adherence, and personalised care, through the use of innovative digital means**, will also contribute to attracting young professionals. **Urgent measures are therefore needed to unleash the full potential of digitalisation for pharmacy services**.

UK'S PHARMACY FIRST INITIATIVE

In May 2023, NHS England and the Department of Health and Social Care announced a delivery plan for recovering access to primary care. Part of the plan includes enabling patients to get certain prescription medications directly from a pharmacy, without a GP appointment. The **new Pharmacy First service***, launched 31 January 2024, enables pharmacies to complete episodes of care for 7 common conditions following defined clinical pathways, including online. This new service is expected to free up GP appointments for patients who need them most and will give people quicker and more convenient access to safe and high quality healthcare.*

ETHICAL USE OF ARTIFICIAL INTELLIGENCE (AI)

AI has the potential to revolutionise the organisation and logistics behind the pharmacy, as well as the delivery of pharmacy services, by enhancing efficiency, accuracy, and patient outcomes. With the growing number of prescriptions, complex drug regimens, and administrative tasks, there is an increasing demand for advanced technological solutions that can assist healthcare professionals in their daily responsibilities and optimise healthcare service delivery. From personalised healthcare solutions to virtual consultations, streamlined medication management, and continuous innovation and collaboration, AI will contribute to making healthcare accessible for all.

Besides, AI and innovative digital solutions hold the potential to attract new workforce into the pharmacist profession. While the integration of such technology in the day-to-day tasks of pharmacists provide for tools and systems to make accurate and evidence-based decisions, key challenges must be addressed:

- AI and automation should always be **subject to human/pharmacist supervision/oversight**, as opposed to a standalone tool;
- AI systems should always be **designed to protect patient privacy and ensure ethical use of data**, building on robust data governance frameworks;
- Comprehensive training programs are necessary with a view to **equipping pharmacists with the skills required to leverage AI** in their practice.

HEALTH DATA AND DIGITAL IDENTITY

As we embrace the digitalisation of pharmacy and related services, health data is the key enabler. The daily activities of pharmacies, especially those operating digitally, strongly rely on the availability of health data to make informed decision and ensue the best possible health outcome. Tools as e-prescriptions, electronic health records, and digital identity wallets are becoming the normality for pharmacists and patients to exchange key health information, which ought to be interoperable and harmonised across Europe. It is therefore crucial to **ensure a level playing field among healthcare providers (online/offline)** when it comes to accessing patients' health data (e.g. electronic health records) and the related infrastructure, namely avoiding discriminatory treatment which prevents the free choice of pharmacy.

INVOLVEMENT OF PATIENTS

Lastly, the involvement of and collaboration with patients is instrumental in guaranteeing that the pharmacy of the future continues evolving while keeping the health needs and behaviour of the citizens at its core. Committed to person-centered care, future pharmacists' role encompasses patient experience and patient education. In this sense, **continued alignment and exchange with patient organisations is necessary** regarding:

- Short, mid, and long-term objectives related to pharmacy care; and
- How digitalisation can contribute to achieving such objectives (e.g. pharmacovigilance).

CONCLUSION

The digitalisation of pharmacy and the strengthened role of the pharmacist constitute the basis for a transformative shift in the delivery of pharmaceutical care in Europe. Digital innovations offer numerous benefits, including improved accessibility, convenience, cost-effectiveness, and enhanced medication management. However, addressing challenges related to barriers to accessing health, reputation, harmonised standards, and shortage of professionals is essential to fully realise the potential of these advancements. As technology continues to evolve, the pharmacy of the future will likely be more integrated, patient-centric, and driven by digital innovation, ultimately contributing to better health outcomes across Europe.

The EAEP envisions a healthcare landscape where pharmacies enhance accessibility, efficiency, and patient outcomes through personalised, comprehensive, and secure digital services. By addressing the challenges and capitalising on the opportunities presented by the digital age, we can transform the pharmacy sector and improve healthcare delivery for all.

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ABOUT US

The **European Association of E-Pharmacies (EAEP)** represents the interests of e-pharmacies on the European continent. The EAEP voices its interests mainly with political stakeholders, regional and business actors, with the ultimate aim to improve the health of Europe's citizens and strengthen the European healthcare system. E-pharmacies have digitalised the classical pharmacy, and therefore act at the crossroads of digitalisation, healthcare, e-commerce and sustainability. As pioneers in providing digital solutions and our innovative and secure processes in dealing with health data, offering medicinal products and digital healthcare service while complying with national and EU law, the EAEP members continuously seek for ways to enhance the quality, safety and efficiency of healthcare for Europeans.

ANNEX

Digitalisation in pharmacy refers to the adoption of digital tools and systems to improve the management, distribution, and utilisation of medications. Below is a list of definitions used across the text.

ELECTRONIC HEALTH RECORDS (EHRS)
EHRs facilitate the seamless exchange of patient information among healthcare providers, including pharmacists. This integration allows for better medication management, reduces errors, and ensures continuity of care. Pharmacists can access a patient's medical history, allergies, and current medications, enabling more informed decision-making and personalised care.

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E-PRESCRIPTIONS
E-prescriptions streamline the prescribing process by allowing doctors to easily provide prescriptions electronically to patients or – at request of the patient – directly to pharmacies. This reduces the risk of prescription errors, prevents forgery, and improves the efficiency of dispensing medications. E-prescriptions also facilitate real-time monitoring of prescription fulfilment and adherence, and make it possible for citizens travelling across borders to obtain their medicines.

ARTIFICIAL INTELLIGENCE (AI) AND MACHINE LEARNING
AI-powered tools and machine learning can assist pharmacists and enhance various aspects of pharmacy practice, from personalised medication recommendations to predictive analytics for disease outbreaks and medication demand.

AUTOMATED DISPENSING SYSTEMS
Automation in pharmacies, through robotic dispensing systems, improves accuracy in medication dispensing. These systems reduce the likelihood of human error and increase the efficiency of pharmacy operations.

1 EAEP input to the Rapporteur's draft for a pharmacy reform law (ApoRG) (Germany)
2 https://www.consilium.europa.eu/media/ny3j24sm/much-more-than-a-market-report-by-enrico-letta.pdf
3 The WHO estimates the annual cost of medication errors at $42 billion USD annually https://ecamet.eu
4 https://copenhageneconomics.com/publication/unlocking-the-benefits-of-online-access-to-prescription-medicines-across-the-eu/