

THE DIGITAL PHARMACY

AI in the Pharmacy – Driving Early Detection and Hybrid Care

“Thanks to AI, we are taking the pressure off our staff while maintaining our quality.”

- Marc Kriesten, Pharmacist

5 times more patients treated
60 % more early detection
30% increase in OTC sales

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The current healthcare system is facing significant challenges. One of these is demographic change, which is resulting in a shortage of healthcare professionals that must meet the needs of a growing patient population. The key question for policymakers is how to solve this problem cost-effectively and without additional infrastructure. During this debate, pharmacies stand out as a key player. Public pharmacies in Germany, for example, serve over three million people a day [1]. Digital solutions can and will play a significant role in this. By integrating artificial intelligence, efficiency can be increased and new opportunities created.

The pharmacy as a health care hub

The unique combination of medical expertise and local presence has led to a high level of loyalty and trust among citizens. More than three million people use the services of public pharmacies every day – a total of one billion contacts per year.

The bond and loyalty between the pharmacy and its customers is unparalleled in almost any other sector: compared to other players in the healthcare sector, pharmacies enjoy the highest level of trust among patients of all ages. On average, pharmacies are much closer to patients than doctors' offices, usually within 2.6 kilometers [2]. But they are not only more accessible in terms of distance, but also in terms of time: no appointment is required and the average waiting time is hardly comparable. Through personalized advice, a visit to the pharmacy can lead to health promotion, even for minor complaints.

All these benefits can be enhanced through the use of digital tools: We can expect the use of technology to have a positive impact on the early detection of diseases – an addition that creates opportunities for pharmacists outside of pharmaceutical advice.

Technology and digitization in today's healthcare system

The foundations have already been laid: In recent years, digitalisation in pharmacies has developed rapidly. Acceptance is high on both sides: in a bitkom survey conducted in 2021, 62% of respondents stated that they regularly order medicines online [3].

Other important digital tools include e-prescriptions and electronic patient records: According to surveys, access to relevant health data – including treatments and medication – regardless of time and place is particularly important for patients. Digital emergency contacts, EHRs and digital vaccination cards are considered more important than, for example, telemedical video consultations [4]. Overall, telemedicine has not been very popular in Germany so far, but the potential is great: a full 91% of users are convinced and say they would like to use telemedicine services in the future [5]. It is conceivable to use the pharmacy as an entry point to build trust and at the same time develop new business opportunities in the pharmacy.

Artificial intelligence in the pharmacy

With the use of artificial intelligence, data analysis and advice can now be digitized. In general, the use of artificial intelligence is mainly considered in four areas:

1. Currently, artificial intelligence primarily supports administrative and organizational processes in pharmacies. This includes, for example, inventory and demand planning, which will become particularly relevant in 2022, when several EU countries will have to deal with drug shortages [6].
2. The use of smart technologies can also reduce the workload on staff by digitizing administrative processes such as documentation. The resources freed up can then be used to improve the quality of advice, for example.
3. Algorithms can bundle the multitude of data and information as well as pharmaceutical knowledge, recognise data patterns and derive recommendations. In this way, pharmacists receive high-quality advice, even in situations where rare symptom- or thought patterns occur [7].

4. In the next step, pharmaceutical knowledge can be expanded to include medical knowledge. This can have a positive impact on treatments in terms of drug interactions or expected side effects [6].

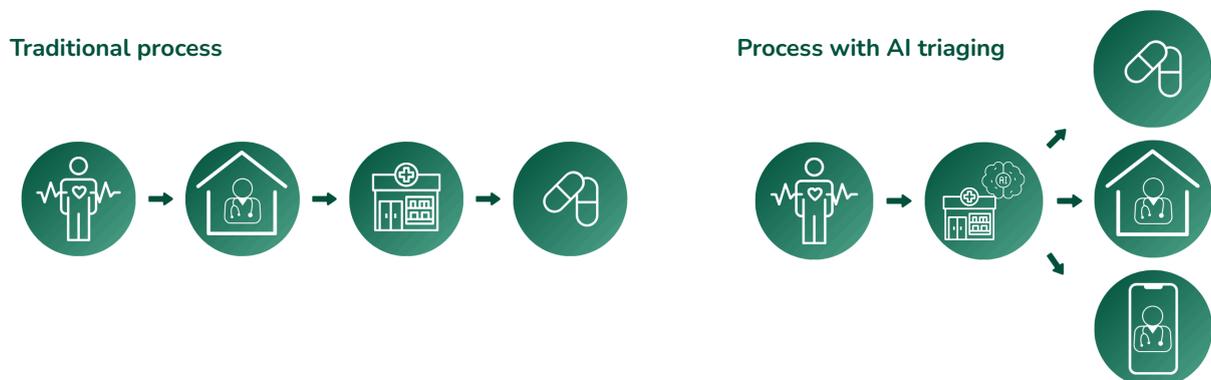
The pharmacy as a gateway to hybrid care

Through the use of various innovative technologies – such as artificial intelligence – the simple and fast transmission and use of health data can be realized. A major advantage is that no additional specialized personnel, which is already in short supply, is required to provide information and services.

This opens up new business opportunities for pharmacies. The intelligent use of health data can be achieved through machine learning and, in more advanced stages, artificial intelligence. In addition to the aforementioned opportunities for the use of AI in pharmacies, two other areas can be added:

1. The use of chatbots and virtual assistants to meet information needs has already proven to increase efficiency. In the same way, pharmacies can benefit from the use of these technologies in the future. On-site specialists will be significantly relieved, leaving more time for personal consultations and complex tasks.
2. The use of artificial intelligence is also being discussed for diagnostics. This approach could facilitate access to medical care, especially in underserved regions where there is a shortage of (specialized) medical practices.

The pharmacy is the ideal entry point for hybrid health: the relatively high density of locations, the expertise of the staff and the close relationship with the patients allow for a quick market introduction. The pharmacy can thus be seen as a gateway between different market participants.



Illus.: The process without vs. with the use of AI. Currently, the process from first contact to treatment usually takes much longer for the patient than it might in the future with the AI service.

Artificial intelligence enables preliminary indications and pre-diagnosis. As a result, a triage tool is available in the pharmacy: Can the patient be helped in the pharmacy, can they help themselves, or do they need medical assistance? If necessary, direct appointments or digital consultations with doctors or other healthcare providers can be arranged by linking up availability data. This not only ensures that patients are quickly cared for in the pharmacy, but also helps to free up doctors' waiting rooms for acute or complex cases.

Market potential: Enormous opportunities for pharmacies and patients

A reform of the business model is also desirable for the pharmacies themselves: The economic situation of pharmacies in Germany is considered to be extremely tense. Despite increasing sales due to medical progress and an aging population (and thus a higher number of patients), pharmacies are experiencing a steady decline in profits due to skyrocketing costs [8].

Therefore, the results expected from the implementation of this concept offer great potential for both patients and pharmacies. The following opportunities stand out:

- Treating **5 times more patients** in the same amount of time
- Up to a **60% increase** in the **early detection rate** of diseases
- **30% increase in revenue** in the OTC (over-the-counter) sector

Practical insights

One pharmacy that already offers such a service in the field of dermatology is the Glückauf Apotheke in Dinslaken Hiesfeld. Owner Marc Kriesten is convinced of the advantages of using artificial intelligence in the pharmacy: "Medicine and pharmacy are very complex. As humans, we can sometimes overlook certain aspects. That's where machines can help to cover the entire spectrum and ensure that nothing is forgotten."

But what are the results he does expect from the technology service? "We decided to work together to provide our customers with a truly special shopping experience in the pharmacy. Thanks to the analysis, we are able to make very specific product recommendations to our customers. And because most of it is self-service, we are taking the pressure off our staff while maintaining our quality."

In summary, the pharmacy is a key pillar of today's healthcare infrastructure, and even more so in the future. With increasing digitalization and innovation, pharmacies are emerging as central hubs of healthcare, serving as the interface between digital and on-site medicine. Pharmacies are ideally suited to incorporate

innovative concepts and technologies to complement and optimize their existing model – and they benefit equally from it.

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