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Research Article

THE BENEFITS THAT GERMANY IS SET TO ACHIEVE BY IMPLEMENTING A DIGITAL PHARMACY (REVIEW)

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A R T I C L E I N F O

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A B S T R A C T

A digital pharmacy system presents unlimited benefits to the current healthcare system and patients' medication prescribing and dispensing process. Some nations have already established a system that pharmacies can use. Thus, patients do not have to travel to the pharmacist to request prescriptions because this process can be achieved electronically. Some of the benefits associated with a digital pharmacy system include lower medication cost, convenience, access to medication regardless of the patient's location, which solves a condition known as "pharmacy desert," patient safety by reducing medication prescription errors, and regular support from the pharmacists. Once implemented, the Germans will be able to request medication as per the set prescriptions without necessarily travelling to the pharmacist.

INTRODUCTION

Germany has been working toward implementing a digital pharmacy system where pharmacists can be able to prescribe medication to patients online. As the nation gears towards realising this process, it has aimed at achieving it in phases in a bid to ensure that everything is well set. This has taken a series of dimensions, including legal and technical aspects. According to the popular global accounting and consulting firm McKinsey & Company, the era of digital pharmacy has arrived.[1]The who, what, when, and how of pharmacy care: this shift will be taken by many shareholders because e-commerce penetration in retail pharmacy is small relative to other many retail categories. The company analyses several reasons why the trend toward digital pharmacy is inevitable.[2] First, there is a demand tailwind, where the economy has experienced a significant expansion in consumer preference for home options during the COVID-19 pandemic with unique stickiness as standard activity returns. Ideally, the pandemic was instrumental in making countries adjust to digital pharmacies where patients could electronically request drugs.[3][4] Second is the tech-driven innovation, characterised by a rapid increase in tech driven product-delivering models (such as a digital pharmacy) that are going through traditional channels and assisting the shift to home[5]. In addition to demand tailwinds, other significant factors are driving the change for those who are requiring clinical assistance for their chronic pre-cautions. Third, the expansion in a homebound population where the economy has seen material expansion and an increase in the general population, including the older people who are allowed for regular medical prescriptions and those with intellectual developmental disabilities. Finally, the players' actions, where there has been an increase in new medical necessities and reimbursement policies. Different difficulties in serving the pharmacy market have held this move as they claim that it will ease the prescription writing process and promote transparency. They argue that patients will be able to access these services at home. It needs a fleet of pharmacists who can serve patients irrespective of their location. Market research by Digital Journal revealed that the pandemic, the push for an efficient health system, the increasing government initiatives and incentives, and technological advancements have led to a rise in digital pharmacy systems and e-prescriptions.[6] This is the journey that Germany has embarked on.

Technology has impacted every stage of life, such as occupations fields, particularly in the pharmaceutical industry sector, where it helps store patients' records, prescribe medication, dispense and administer medicine, and improve

[1] McKinsey & Company, "Pharmacy's new era—in the home," December 1, 2021, https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/pharmacys-new-era-in-the-home.
[2] Ibid.
[3] Vibhu Paudyal, "Provision of clinical pharmacy services during the COVID-19 pandemic: Experiences of pharmacists from 16 European countries," *Research in Social and Administrative Pharmacy*, 17 (2021): 1515.
[4] Shabeer, Thorakkattil *et al*., "Structural and operational redesigning of patient-centered ambulatory care pharmacy services and its effectiveness during the COVID-19 pandemic," *Research in social & administrative pharmacy: RSAP*, 17, no.1 (2021): 1839.
[5] McKinsey & Company, "Pharmacy's new era—in the home."
[6] Market Research, "Global E-Prescribing Market, Covid 19 Impact, Size, Share, Opportunity, Forecast," Digital Journal, April 20, 2022, https://www.digitaljournal.com/pr/global-e-prescribing-market-covid-19-impact-size-share-opportunity-forecast

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patient safety.[7] Presently, pharmacists are using IT management systems in dispensing and labelling. But most of them have been noted bot to be using the IT system at the fullest where they are capable of doing it much more. A good example is prescribing, intervening, and providing more services to the patients. The use of the internet has opened more opportunities for more pharmacies. Therefore, communication worldwide has been made easier. Electronic prescribing (EP) is a system that is very much increasing rapidly in the industry. This system is when patients are prescribed and dispensed electronically, leading to a better secure and less mistaken process. The system was much used in the 2000s in the UK.[8] Most systems have become more popular, with features such as adherence monitoring, text alerts, and telecare.[9] Germany is set to achieve the benefits associated with this implementation.

AIM AND METHODOLOGY

The aim is to explore the benefits that Germany is set to achieve by implementing a digital pharmacy.

Research Questions

1. Which are the benefits of a digital pharmacy system?
2. What has Germany done in terms of implementing a digital pharmacy system?
3. What recommendations on what Germany can do to implement a digital pharmacy system successfully?

Objectives

4. To understand the benefits of a digital pharmacy system
5. To explore what Germany has done in terms of implementing a digital pharmacy system
6. To provide recommendations on what Germany can do to achieve a successful implementation of a digital pharmacy system

METHODOLOGY

This study has applied qualitative methods to gather information related to these objectives. The objectives are to understand how Germany has been fairing in this process of embracing a digital pharmacy system and the benefits it can reap from this endeavour. Thus, the research entails exploring journal articles, scholarly studies, and reliable websites. It is critical to understand that much of Germany-specific information is not scholarly published. Nonetheless, utilising reliable websites in combination with the scholarly sources that relate to other countries will help understand this phenomenon. After all, a digital pharmacy system and general healthcare digitalisation have been an ongoing effort as nations seek to deliver healthcare services electronically.

Benefits of a Digital Pharmacy System

A New era of Pharmacy

Customers of the $460 billion retail pharmacy sections are growing, demanding pharmacy skills that match with the rest of their retail skills. A recent study conducted has revealed that there are two main patient archetypes across the spectrum of skills.[10] Ensuring that the skills are right for these two organisation will prepare pharmacies for a broader spectrum of users. Users in the other archetype, those with many chronic challenges, demand higher-clinical assist models and seek counselling from an experienced pharmacist to take care of many medications. This infrastructure put pressure on pharmacy cost propositions. Both patients archetypes must always be the main priority for shareholders: anyone concerned with convenience and anyone who has ambition and dreams of continuing relationships with their pharmacist to assist their health conditions.[11] These are people who would want to concentrate more and use their energy as possible interacting with their pharmacy. This is usually perceived to be the primary dream of young professionals, active retirees, and many more. New pharmacy entrants are doing their best to meet these requirements. On the other hand, the second archetype includes patients who are searching for much required support from their pharmacy (and pharmacist) in taking care of many medications. Their driving thought is that they have many medications, and would require assistance from the pharmacists they know and trust. Complex chronic homebound patients seeking many medications often have adherence difficulties and could profit from a high-touch pharmacist model that includes adherence counselling. Digital pharmacy systems improve adherence because of the reminders set, where the pharmacist may call or text the patient on when to take medication.[12] As services providers aim to deliver efficient services to the clients, the latter also need efficient systems that can improve the way they receive medication. They need systems that can remind them when to use medication, when they should seek a refill, and what specific medication they should be taking.

Digital Pharmacy Benefits

Digital pharmacies have existed for a while now, but they are growing to become famous as new acquisitions come on the market. Users are starting to demand quicker access with their minds on ease and convenience. Convincing is one thing that digital pharmacies are doing well. Like other technology challenges, adoption usually takes some time (blockbuster was not taken down in a day).[13] Sometime back, nations had not embraced technology, especially in the healthcare sector, due to low adoption and lack of widespread use of such systems. An excellent example is the eHealth system that the UK had developed in 2007-10, which was discontinued due to lack of public adoption as a few people opened accounts characterized it.[14] However, it is not likely that traditional pharmacies might vanish at this point. Instead, a hybrid solution between brick and online is likely to be experienced for years, like what has been observed in e-commerce and physical retail stores. Just like virtual telemedicine services, which permit healthcare at home, digital pharmacies are in a prime position for expansion.

[7] Amber, Porterfield *et al*., "Electronic prescribing: improving the efficiency and accuracy of prescribing in the ambulatory care setting," *Perspectives in health information management*, 11, no.1 (2014):2.

[8] Trisha, Greenhalgh *et al*., "Adoption, non-adoption, and abandonment of a personal electronic health record: case study of HealthSpace." *Br Med J*, 16, no.341 (2010): 1.

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[10] McKinsey & Company, "Pharmacy's new era—in the home."

[11] Benefits by Design, "Why Your Next Prescription Should be Filled by an Online Digital Pharmacy," May 11, 2021, https://www.bbd.ca/blog/digital-pharmacy-advantages/

[12] Niteesh Choudhry, "Effect of Reminder Devices on Medication Adherence The REMIND Randomized Clinical Trial," *JAMA Internal Medicine*, 177, no.5 (2017): 630.

[13] Marilyn, Lennon *et al*., "Readiness for delivering digital health at scale: lessons from a longitudinal qualitative evaluation of a national digital health innovation program in the United Kingdom. *J Med Internet Res*, 19, no.2 (2017):e42

[14] Trisha, 1.

Remote healthcare access has proven to be incredibly paramount during the COVID-19 pandemic.[15] Digital pharmacies have given people many advantages that could not have been achieved without technology, considering that indoor measures were enacted to mitigate mobility as a way to reduce virus transmissions. The following are reasons why one must rethink refilling your next prescription online.

1. Lower cost: when people go to a pharmacy, they pay for the value of their prescription-only and cover the pharmacy's expenses such as rent. Approximately these value accounts for about 20-25% of the value of the prescription.[16] Digital pharmacies will give members a better plan at an affordable mark up. This fosters similar savings for employers and workers on a per-prescription basis. Surprisingly, one can also save on the additional cost of travelling and picking up the prescription from the pharmacy and the time spent doing so since anything one needs is being brought up to where they live.[17] Therefore, the client can work on other activities and have their prescriptions delivered without spending their time on them.
2. Convenience: digital pharmacies offer perfect convenience by delivering the clients' prescriptions. Not only that, digital pharmacies will always have a portal that permits clients to go through their prescriptions, access resources, and even communicate in person with a pharmacist.[18] This replaces the traditional method of calling the pharmacists or having to travel to meet the pharmacist and seek the prescription. Additionally, one can automatically refill without having the stress of refilling again. This means that the prescription will automatically be refilled on the actual days where it should be. The client does not have to call the pharmacist or refill the online portal or app again.[19] These digital applications are simple and easy to use. The prescription will always have the specific packs for daytime and evening, alongside the details of how the client should take them. This makes the entire process more comfortable and convenient when one thinks of travelling to take medication than staying at home and waiting for that prescription.
3. An added support through an app: As identified above, most digital pharmacies will promote an app when accessing or requesting their services. It does not only add to the convenience of the services but also permeates access to resources and information. For instance, the pocket pills app allows you to go through your orders. It automatically refills, searches medication costs, and even talks to a pharmacist via phone or text. The online pharmacy system may assign one individual to answer any client's question or seek clarifications in case of anomalies.[20]
4. No "pharmacy deserts:" people who live away from the pharmacy may spend a significant amount of time accessing their medication. The term refers to regions where pharmacies cannot be accessed nearby.[21] Big and wide countries and some regions are sparsely populated while others are rural, accessing pharmacy services might not be easy. However, having access to online pharmacies solves the challenges by giving out prescription access online, irrespective of where the client is. It is uncertain whether online pharmacies can fully occupy the space of traditional pharmacies all at once, but many people are expected to turn to these online solutions.
5. Patient safety: the core purpose of medication is to improve patient safety.[22] A digital pharmacy improves this by ensuring prompt medication administration and adherence. Additionally, it eliminates medication errors that may arise in the prescribing process. Medication errors can come up at any level of the medication prescribing process. Errors may arise at the pharmacy due to the misinterpretation of paper-based prescriptions due to handwriting or lacking information.[23] The digital pharmacy system encompasses an e-prescription system that always ensures patients' safety while talking about medication and becoming popular. The main benefit of e-prescription systems is always ensuring patient safety while talking about medication and becoming popular. The main benefit of e-prescription is increasing and growing the quality of care services and patient safety by lowering medication errors. Using e-prescriptions ensures convenience, particularly for patients who have repeated prescriptions. It is most likely to lower medication errors that result from paper-based prescriptions. According to research, about 5% of e-prescriptions introduced mistakes related to the prescribers' information entry.[24]
6. The connection among care providers: In the definition of pre-cautions and efficiency of job flow within the pharmacy, the infrastructure of ways that connect community pharmacies with different parts of the health services has resulted in studying on benefits of these systems for patients and experienced pharmacist and their advantages on pharmacy practice and services.[25] Similar potential benefits have been categorized and shown with the available system that connects pharmacies. Past UK research on public pharmacist perception of electronic transfer of prescriptions (eTP) has demonstrated that medication information can be shared among GPS and pharmacists to create a community pharmacy ecosystem.[26] An ETP system can end up becoming helpful to community pharmacies in

[15] Shabeer *et al*., 1839.
[16] Benefits by Design, "Why Your Next Prescription Should be Filled by an Online Digital Pharmacy."
[17] Shabeer, Thorakkattil *et al*., "Online patient portal-based management of medication renewal and refill pickup in ambulatory care settings: A retrospective utilization study at tertiary care hospital in Saudi Arabia," *Saudi Pharmaceutical Journal,* 30 (2022): 51.
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[23] Bader, Aldughayfiq and Srinivas, Sampalli, "Digital Health in Physicians' and Pharmacists' Office: A Comparative Study of e-Prescription Systems' Architecture and Digital Security in Eight Countries." *OMICS: A Journal of Integrative Biology,* 25, no. 2 (2021): 102. DOI: 10.1089/omi.2020.0085
[24] Benefits by Design, "Why Your Next Prescription Should be Filled by an Online Digital Pharmacy."
[25] Priti and Andrew, 2.
[26] Stephen, 2.

handling their repeat dispensing workload. Research of the England eTP has talked about the possibility of job flow benefits that electronic transmission can offer. Pharmacists should use all these benefits to ensure that they offer patient-focused services.

Electronic prior authorization (ePA) is a fundamental aspect introduced in the pharmacy, where it has two types of prior authorization (PA) affect the pharmacy in various ways. Using the backdated model, a pharmacy can get PA when initially rejected to a claim. A pharmacy software system enables pharmacists to enter a code or hit an "easy" button in obtaining the PA. ePA This is where the prescriber is notified by the software, either in e-prescribing or EHR, that PA is needed. Pharmacists use ePA in describing the wide range of health care services they provide. These services include reviewing drug usage, ordering and reviewing lab tests, and medication reconciliation since they are connected with insurers and physicians.[27] The improved MTM has been widespread where its interventions and activities will need information acquired via health information exchanges (HIEs). HIEs will help communicate between pharmacy physicians and all stakeholders of the caring team.

In dispensing, a physical distribution process, there is an association between inputs and outputs, which is always stable, foreseeable, ad easier to control. This has made pharmacies use a large amount of data generated from these activities.[28] The modern pharmacy management systems have every patient's prescriptions information. This allows pharmacists to communicate the importance of taking their medicines as prescribed to the patient. Big data is also used by pharmacies and health insurance in predicting the risk of medication non-adherence.[29] This method is related to some variables like where the patient lives and the number of patients' medications. When a patient is experiencing a high risk of non-adherence, they are given some advice for reducing possible non-adherence. This gives the importance of adherence to the patient, the importance of medication, and the anticipations of medication, such as side effects. A study revealed that an online refill improved medication adherence.[30] In addition, big data is also used in developing algorithms for predicting treatment results or medication mistakes.

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