Farmacia HOSPITALARIA

SPECIAL ARTICLE
Bilingual edition English/Spanish

Implementation of pharmaceutical care through Telepharmacy: A guide for professionals and patients

Guía de implementación de la atención farmacéutica mediante Telefarmacia para profesionales y pacientes

Ramón Morillo-Verdugo[1], Roberto Collado-Borell[2], Amaya Arrondo-Velasco[3], Marcelo Domínguez-Cantero[4], Aurora Fernández-Polo[5], Elena González-Corominas[6], Esperanza Gutiérrez[7], Aránzazu Linares-Alarcón[8], María de los Ángeles Parro-Martín[9], Miguel Ángel Rodríguez-Cabezas[10], Mar Gomis-Pastor[11]

[1]Servicio de Farmacia, Hospital Universitario Virgen de Valme, Sevilla. Spain. [2]Servicio de Farmacia, Hospital General Universitario Gregorio Marañón, Madrid. Spain. [3]Servicio de Farmacia, Complejo Hospitalario de Navarra, Pamplona (Navarra). Spain. [4]Servicio de Farmacia, Hospital de Puerto Real, Puerto Real (Cádiz). Spain. [5]Servicio de Farmacia, Hospital Vall d´Hebron, Barcelona. Spain. [6]Servicio de Farmacia, Hospital del Mar, Barcelona. Spain. [7]Servicio de Farmacia, Complejo Universitario de León, León. Spain. [8]Servicio de Farmacia, Hospital Regional Universitario de Málaga, Málaga. Spain. [9]Servicio de Farmacia, Hospital Universitario Ramón y Cajal, Madrid. Spain. [10]Servicio de Farmacia, Hospital Clínico San Carlos, Madrid. Spain. [11]Servicio de Farmacia, Hospital de la Sant Creu y Sant Pau, Barcelona. Spain.

Author of correspondence
Roberto Collado-Borell
Servicio de Farmacia
Hospital Gregorio Marañón
Dr. Esquerdo, 46
28028 Madrid. Spain.

Email:
roberto.collado@salud.madrid.org

How to cite this paper

Abstract

Objective: To provide a practical guide for the implementation and use of Pharmaceutical Care through Telepharmacy by healthcare professionals and patients in its different scopes of application. To establish a definition of Telepharmacy and describe the technological tools necessary, advantages, and keys to facilitating its implementation.
Method: Between December 2020 and January 2021, the Board of Directors of the Spanish Society of Hospital Pharmacy, along with the coordinators of the project "Outpatient Care Strategies" ("Mapa Estratégico para la Atención al Paciente Externo") designed a strategy to foster the development and expansion of Telepharmacy in Spain. This strategy involved four courses of action. To develop the first course of action, a call was made in March 2021 among the Spanish Society of Hospital Pharmacy members to develop seven methodological guidelines. The purpose of these documents was to meet the needs for the implementation of Telepharmacy, the most relevant being the development of specific guides for professionals and patients. The guides were developed in four stages between May and October 2021, including a literature review;

Resumen

Objetivo: Desarrollar una guía práctica sobre atención farmacéutica mediante Telefarmacia para profesionales y pacientes, en cada uno de sus ámbitos de aplicación. Definir en qué consiste, las herramientas utilizadas, los potenciales beneficios y las claves para facilitar su comprensión.
Método: Entre diciembre de 2020 y enero de 2021, la Junta directiva de la Sociedad Española de Farmacia Hospitalaria, junto con coordinadores del proyecto "Mapa Estratégico para la Atención al Paciente Externo", diseñaron una estrategia para favorecer el desarrollo y expansión de la Telefarmacia en España. Esta estrategia incluyó cuatro líneas de actuación. Para el desarrollo de la primera, en marzo de 2021 se llevó a cabo una convocatoria dirigida a los socios de la Sociedad Española de Farmacia Hospitalaria con objeto de desarrollar siete documentos de apoyo metodológico destinados a cubrir las necesidades para la implantación de la Telefarmacia, entre las cuales se consideraron como claves el desarrollo de una guía específica para profesionales y otra para pacientes. Las guías se desarrollaron en cuatro fases entre mayo y octubre de 2021: revisión de literatura, entrevistas de consenso, desarrollo de

KEYWORDS
Telepharmacy; Pharmaceutical care; Hospital pharmacy; Telemedicine; Outpatient care; Professionals; Patients.

PALABRAS CLAVE
Telefarmacia; Atención farmacéutica; Farmacia hospitalaria; Telemedicina; Atención ambulatoria; Profesionales; Pacientes.

consensus-based interviews, online workshops, and, finally, the drafting and validation of the final documents. Once the final draft was prepared, a public evaluation of suggestions and observations was performed for a month. The documents were also presented to the Patient Committee of the Spanish Society of Hospital Pharmacy.

Results: The *Guide for Professionals* provides guidelines for the development and implementation of Telepharmacy in its different scopes of application. These guides provide a description of specific goals, healthcare benefits, tools required, and keys to the implementation of Telepharmacy. The *Guide for Patients* is complementary to face-to-face pharmaceutical care from the point of view of the patient, with special emphasis being placed on the most frequently used tools, the potential benefits, and the keys to facilitating patients' understanding of the purpose and use of Telepharmacy.

Conclusions: A *Practical Guide for Professionals and Patients* was developed to ensure the standard development, implementation, and spread of Telepharmacy in all its scopes. This guide is intended to help Hospital Pharmacy professionals benefit from Telepharmacy as a complementary tool to face-to-face pharmaceutical care.

talleres de trabajo *online* y debate y, por último, elaboración y validación de los documentos finales. Una vez elaborado el borrador definitivo se llevó a cabo una valoración pública de sugerencias y alegaciones durante un mes, así como una presentación al comité de pacientes de la Sociedad Española de Farmacia Hospitalaria.

Resultados: La guía para profesionales se ha orientado para dar las pautas para el desarrollo e implementación de programas de Telefarmacia en cada uno de sus ámbitos de aplicación. Está estructurada de forma que resalte los objetivos concretos, los beneficios asistenciales, las herramientas necesarias, así como las claves para implantarla. La guía para pacientes se ha desarrollado como herramienta complementaria a la atención farmacéutica presencial desde la visión del paciente, destacando las herramientas más comúnmente utilizadas, los potenciales beneficios y las claves para facilitar la comprensión sobre la finalidad y uso de estas intervenciones.

Conclusiones: Se ha desarrollado una guía práctica de apoyo, tanto a profesionales como a pacientes, para estandarizar el desarrollo, implantación y expansión de la Telefarmacia en todos sus ámbitos de actuación. La guía pretende ayudar al colectivo de farmacia hospitalaria a alcanzar los potenciales beneficios de una herramienta que se presenta como complementaria a la atención farmacéutica presencial.

Introduction

In recent years, the social and demographic changes, along with improvements in public health and continued therapeutic advances, have caused a dramatic increase in the volume of chronic patients attended at Hospital Pharmacy Services (HP)[1]. Meeting the population's needs as effectively as possible is a challenge for national health systems[2].

In Spain, to standardize the evolution of outpatient hospital pharmacy care, the Spanish Society of Hospital Pharmacy (SEFH) launched the MAPEX project (Outpatient care strategy) in 2014 by adopting an anticipatory and updated perspective of hospital pharmacy care[3]. Based on this new approach, Morillo-Verdugo *et al.*[4] developed a new definition of pharmaceutical care (PC) based on the three primary needs of patients: individualized dynamic care; target-oriented pharmacotherapy; and continued follow-up based on the use of new technologies.

The use of Telemedicine in pharmaceutical care is not a novelty[5]. This service, called Telepharmacy, has been developed and tested by numerous authors who have pioneered Telepharmacy in their countries[6,7]. Different international scientific societies have defined the concept of Telepharmacy. In Spain, the SEFH defined Telepharmacy as "remote pharmacy practice based on new technologies" and established four scopes of application: drug therapy monitoring; patient education and information; communication with a multidisciplinary team; and remote dispensing and informed delivery of medication[8]. The latter is the most widely known service, as the SARS-CoV2 pandemic generated multiple experiences and studies. The ENOPEX study in 9,442 patients revealed that 96.7% of patients reported being "satisfied" or "very satisfied" with Telepharmacy and considered it a complementary activity to standard follow-up by the Hospital Pharmacy[9].

Despite the growing demand for Telepharmacy services, a national or international document for professionals and patients has not yet been published. A guide was necessary to foster the development of Telepharmacy and describe its advantages as a complementary service to face-to-face pharmaceutical care. A guide for the implementation of Telepharmacy will assist pharmacists in providing remote pharmaceutical care. In addition, the guide for patients will help patients make real-time decisions about their drug therapies with the counseling of their professionals of reference.

This study aims to develop a practical structured guide on Telepharmacy for professionals and another for patients. These guides will define Telepharmacy and describe the most common technologies, potential benefits, and the keys to helping users understand the purpose and use of Telepharmacy services.

Methods

Between December 2020 and January 2021, the Board of Director of the SEFH, in collaboration with the coordinators of the MAPEX project and the Telepharmacy Strategy, developed a plan to favor the development and spread Telepharmacy. This plan included four courses of action: development of methodological guidelines, healthcare support, innovation and research, and technological support.

An open, public call was issued among SEFH members to recruit 24 candidates to develop the first course of action. Candidate hospital pharmacy specialists were required to have previous experience in the development and use of Telepharmacy and to have taken part in some of the initiatives developed within the framework of the MAPEX project. A geographically representative sample of professionals was recruited to ensure that the particularities of the different autonomous communities were considered during the drafting of the documents.

This first course of action resulted in the development of seven methodological guidelines aimed at meeting the methodological needs for the implementation of Telepharmacy in Spain: "Patient prioritization model"[10]; "Guide for pharmaceutical teleconsultation"[11]; "Effective, Safe Telepharmaceutical Care"[12]; and "Health Indicators"[13]; "Validation of Technological Tools"[14] and two reference guides for patients and professionals.

The "Guide of Telepharmacy for professionals"[15] was established as the core document, and the other documents would be based on this guide to ensure homogeneity and coherence. The "Guide of Telepharmacy for Patients"[16] is considered an adaptation of the core guide for professionals.

This Guide was developed between May-October 2021 in four stages: literature review; consensus interviews using the nominal group technique (with direct communications among experts and face-to-face discussion); development of online workshops to discuss the essential aspects of the documents drafted; and drafting and validation of final documents.

Literature review

A literature review was conducted to identify guidelines and recommendations for Telepharmacy programs. This review included recommendations from international and national pharmacy societies. This review aimed to identify successful experiences and help detect best practices in Telepharmacy.

Consensus interviews

After an analysis of the literature, a battery of interviews was conducted with the Working group both, individually and in groups, to identify impro-

vement points in Telepharmacy (safety, effectiveness, humanization) and key aspects for the validation of technologies (accessibility, usefulness, privacy, and confidentiality).

Workshops

A total of four online workshops were held. The conclusions obtained from the literature review and interviews were presented, discussed, and validated in the first workshop. In the other workshops, recommendations were accepted, and priorities were established based on the impact and feasibility of each recommendation. The purpose was to assist professionals and patients in the use and implementation of Telepharmacy.

Drafting and validation of final documents

When the final draft was completed, a public evaluation of suggestions and observations was performed between December 2021 and January 2022 using the website of the MAPEX project. The final document was also presented to the Patient Committee of the SEFH.

Results

Guide of Telepharmacy for Healthcare Professionals

The Guide of Telepharmacy for Professionals provides guidelines for the development and implementation of Telepharmacy programs in their different scopes of application. These guidelines focus on specific goals, healthcare benefits, tools required, and keys to the implementation of Telepharmacy. This Guide is the core document on which the other documents are based.

Below are described the main advantages of Telepharmacy concerning the four areas of application from the perspective of the patient, Hospital Pharmacy, and the health system (Table 1). For further information on the most relevant aspects of the document, visit https://www.sefh.es/mapex/cmo-oportunidad.php.

Coordination with the care team

Telepharmacy applied to coordination with the care team involves using information and communication technologies (ICTs) to enable interaction among healthcare professionals. The main purpose is to improve continued healthcare and promote an integral multidisciplinary approach to the patient. These communication channels can be established among hospital pharmacy professionals and the healthcare team (care team, nursing staff, or others) to improve drug therapies' selection and follow-up and adopt a multidisciplinary approach to cases. This scope of application may also provide the opportunity to disseminate information and education among professionals, promote networking, or raise awareness about the role of hospital pharmacy professionals.

There is a wide range of technologies that enable coordination, synchronous/asynchronous communication and information-sharing among healthcare professionals. Synchronous communication via phone or video call favors real-time communication among professionals. In contrast, asynchronous communication is performed through electronic mail, instant messaging, Web 2.0 (i.e. websites, blogs, professional forums, and social networks, to name a few); cross-consultation tools through the electronic medical record (EMR), or through platforms combining instant messaging and the EMR. These tools may favor rapid information dissemination and sharing among professionals, foster networking, and enhance the visibility and consideration of pharmacy hospital professionals as healthcare professionals. Other cross-consultation tools, such as EMRs, are necessary for Telepharmacy, since they make it possible to record clinical information in an interoperable and integrative way with hospital information systems.

To coordinate healthcare teams through Telepharmacy, we suggest the following scheme: analysis and goals; selection of the tools and resources required; development of the service; education and training; results and identification of improvement points. For further information about Telepharmacy technologies, please consult the document "Validation of Telepharmacy technologies"[14].

Patient education and information

Telepharmacy applied to patient information and education involves using ICTs to establish communication channels that enable patient education and the transmission of rigorous, truthful, updated information. It is also an alternative communication channel for patient-clinician interaction.

The use of Telepharmacy in this scope contributes to collaborative learning (i.e. education programs), provides information about the therapy (dosing, adverse events, drug-drug interactions, adherence); help share experiences; promotes the empowerment of patients and/or caregivers; and improves autonomy and awareness about the relevance of the therapy. In addition, it improves professional-patient communication and awareness of the therapeutic needs and therapies of the patient.

The hospital pharmacist is responsible for sharing with their patients the information and educational resources available concerning their drug therapies, whether designed by the Hospital Pharmacy itself or developed by other sources of reference. Thus, the hospital pharmacist must get involved in the whole process, i.e., management, generation, dissemination, and sharing of information.

There are numerous technologies available that enable information sharing and patient education. These technologies include blogs, social networks, wikis, interconnected multimedia services, videos, discussion forums, online infographics, training platforms or interactive online games, to name a few. The accessibility of these tools makes it possible that hospital pharmacies provide information and educational resources to their patients and caregivers via online or face-to-face channels. For further information about Telepharmacy technologies, please consult the document "Validation of Telepharmacy technologies" ([14]).

To use a Telepharmacy program for patient education and training, we suggest the following scheme: analysis and goals; selection of the tools and resources required; development of the service; education and training; results and identification of improvement points.

Drug therapy monitoring

The implementation of Telepharmacy for drug therapy monitoring involves using ICTs to attain the individual pharmacotherapeutic targets of each patient through the detection of drug-drug interactions, adverse events, management of therapeutic adherence, review of medication, evaluation of clinical outcomes, and measurement of PROs and PREMs.

Remote drug therapy monitoring can be performed via teleconsultation and/or telemonitoring. Teleconsultation enables scheduled two-way communication with the patient to resolve doubts and provide counseling.

Additionally, telemonitoring facilitates remote follow-up of pharmacological parameters (i.e., monitoring treatment adherence and other clinical parameters).

There is a broad range of ICT-based technologies that enable drug therapy monitoring through synchronous and/or asynchronous teleconsultation and telemonitoring. Synchronous technologies such as the phone or video call platforms allow two-way real-time communication between the patient and the professional to resolve doubts and provide guidance through teleconsultation. Although video call platforms are gaining ground, the most widely used tool is the telephone since they enable video sharing. It is necessary that patients and healthcare professionals have access to secure video call platforms and a stable Internet connection that supports video calls. Moreover, patients and professionals must have adequate technical skills.

Asynchronous tools include electronic mail, SMS, instant messaging, voice notes, videos or consultation via website. These technologies enable deferred communication and do not require that the patient and the pro-

Table 1. Below are described the main benefits of Telepharmacy concerning the four scopes of application from the perspective of the patient, Hospital Pharmacy, and the health system

Scope of application	Benefit		
	For patients and/or caregivers	For the HP	For the health system
Coordination with the healthcare team	– It promotes the use of an integrative, multidisciplinary approach to the patient through interaction between the HP and the medical team. – It improves satisfaction and perception of care service quality.	– It increases information sharing and communication among healthcare stakeholders. – It favors coordinated, continuous care. – It favors clinical decision-making and the resolution of events. – It makes the HP community more visible.	– It promotes a patient-centered care model. – It promotes integrated care across the different levels of healthcare. – It provides the opportunity to optimize resources and the workload. – It promotes interoperability among the information systems of the different levels of healthcare. – It offers the opportunity to improve the sustainability of the health system.
Patient education and information	– It increases patient proactivity and empowerment. – It improves patient/caregiver satisfaction by providing new channels of education and information.	– It provides information about drug therapies and other health-related issues through multiple channels. – It enables participation and cooperation with other health professionals in developing health communication strategies. – It makes HP activity more visible among patients, society, and other healthcare professionals. – It improves patient education and training.	– It increases information sharing and communication among healthcare stakeholders. – It promotes the adoption of health prevention strategies. – It promotes a patient-centered healthcare system.
Drug therapy monitoring	– It reduces patients' dependence on the healthcare center, reduces travel to the hospital, and diminishes the time and resource use. – It improves access to healthcare providers, communication, and day-to-day accompaniment. – It improves clinical outcomes and promotes healthy habits. – It favors patient empowerment. – It improves patient/caregiver satisfaction with the services received.	– It enables close monitoring of drug therapy. – It optimizes the monitoring of treatment adherence, the detection of drug-drug interactions, and the detection and treatment of adverse events. – It favors the monitoring and recording of health parameters. – It offers the opportunity to improve therapeutic decision-making. – It enables smart data storage.	– It promotes continuous patient-centered care. – It provides the opportunity to optimize resource and workload management. – It increases information sharing and communication among healthcare stakeholders. – It improves access to healthcare services.
Remote dispensing and informed delivery of medicines	– It improves flexibility in the dispensing and delivery of medicines. – It reduces travels, time and resource use, and facilitates balancing work life and family life. – It reduces patients' dependence on the healthcare center and wait times to collect medicines from the HP. – It improves patient/caregiver satisfaction with the services received.	– It offers the opportunity to optimize the management of face-to-face appointments for dispensing medicines at the HP. – It optimizes workload (preparation or dispensing of medicines when the workload decreases, PH stock management). – It guarantees the total traceability of the dispensing process.	– A more humanized, patient-centered healthcare model. – It promotes the development of an integrated healthcare model. – It provides the opportunity to optimize internal efficiency in resource use and workload management.

HP: hospital pharmacist; HPS: hospital pharmacy service.

fessional are connected simultaneously. These tools are generally used to arrange appointments, send reminders, and resolve doubts. This technology group also encompasses mobile health services, including apps and wearables that monitor and record pharmacotherapeutic information and/or health parameters. The use of these technologies has increased in recent years due to advances in healthcare services, patient proactivity, and a reduction in the technology gap. Real-time data transfer with healthcare professionals is also possible through apps or wearables. The choice of teleconsultation/telemonitoring tools depends on the capacities and resources available in each pharmacy hospital and the technology skills of the patients and professionals involved.

For further information about the implementation of Telepharmacy in this scope, please, consult the documents: "Patient prioritization model"; "Guide for pharmaceutical teleconsultation"; "Effective, safe pharmaceutical care"; and "Health indicators", available at: https://www.sefh.es/mapex/cmo-oportunidad.php.

Remote dispensing and informed delivery

This application of Telepharmacy involves shipping medicines to the point of delivery close to the patient's place of residence, which contributes to flexibility in the informed delivery of medication.

A variety of delivery pathways are available: patient's home, healthcare center, nursing home, and community pharmacy. This variety requires flexibility in logistics to adapt to the patient's needs, which may vary across patients and change over time.

Whichever pathway and point of delivery are chosen, remote delivery will involve informed delivery and a follow-up teleconsultation, along with face-to-face consultations, when necessary, to verify pharmacotherapeutic targets. Transportation of medication, whether carried out by in-house or outsourced personnel (i.e., logistics companies, patient associations) will be performed in compliance with current laws and regulations to guarantee adequate storage, traceability, personal data protection, and proper medicine handling.

Remote dispensing and informed medication delivery can be provided via synchronous technologies such as telephone or video calls. These technologies enable two-way real-time communication between the patient and the professional, which is key to guaranteeing informed home delivery of medication. Asynchronous technologies (i.e., e-mail, SMS, web apps or mobile apps) are generally used to schedule shipping, send reminders, resolve doubts in remote dispensing, confirm medicine receipt, grant shipping authorization, and guarantee traceability, among other uses.

For further information about the implementation of Telepharmacy in remote dispensing and informed delivery of medication, please consult: "Patient prioritization model"; "Guide for pharmaceutical teleconsultation"[11]; "Effective, safe telepharmaceutical care"); and "Health indicators", available at: https://www.sefh.es/mapex/cmo-oportunidad.php

Guide of Telepharmacy for Patients

This guide is addressed to patients and/or caregivers using Telepharmacy as a complementary tool to face-to-face pharmaceutical care.

To such purpose, the scopes of application of Telepharmacy are defined from patient's perspective. Emphasis is placed on the most common technologies, the advantages of Telepharmacy, and the keys to facilitating patients' understanding of the purpose and use of these interventions (Table 2). The most relevant aspects of this Guide are described at: https://www.sefh.es/mapex/cmo-oportunidad.php

Discussion

To the best of our knowledge, these are the first practical guides for healthcare professionals and patients providing guidelines for developing and incorporating Telepharmacy in its different scopes of application.

Mixed pharmaceutical care combining face-to-face and remote care is a reality[17]. However, developing a Telepharmacy system with ade-quate characteristics that meet the needs of healthcare professionals and patients is challenging. In this sense, each Hospital Pharmacy must define and incorporate the Telepharmacy program that best adapts to the HP, patients, and healthcare center[18]. Hospital Pharmacies planning to incorporate a Telepharmacy program must consider relevant aspects such as the program's purpose, the technologies that will be employed, the resources available, and the technical skills of healthcare professionals and patients.

These guides will assist HPs in implementing and initiating the program and promoting the use of Telepharmacy in its four scopes of application, namely: patient training and education; drug therapy monitoring; healthcare team coordination; and remote dispensing and informed delivery of medication, which require further development. Additionally, these documents will ensure that Telepharmacy programs are developed and implemented homogeneously to meet standard goals, regardless of variability in each HP's human and material resources. These programs will benefit both patients –the main beneficiaries– and health professionals.

According to Tortajada-Goitia et al.[19], remote consultations were made available in 87.6% of hospitals during the pandemic. In contrast, a study conducted by Koster et al.[20] in community pharmacies in the Netherlands revealed a lower percentage, 44.2%, which was explained by the low level of agreement between physicians and pharmacists added to confidentiality issues related to the information provided to patients.

In line with other initiatives concerning coordination of healthcare professionals, this Guide highlights that Telepharmacy offers an opportunity to improve communication among professionals at different levels of healthcare, promote the dissemination of information among professionals, foster joint activities, and position HP as a reference in the healthcare community. Making the role of HP visible will positively impact the level of satisfaction and experience of patients[21].

A range of studies confirms that one of the most frequent demands to healthcare services during the COVID-19 pandemic in different countries and regions was the remote provision of health information through ICTs, even during the hardest times of restrictions, limitations to mobility, and information volatility[22]. These studies highlight the significant role that Telepharmacy may play in patient training and information. Telepharmacy in this scope will help confront current challenges to health systems and provide rapid truthful information to counter generalized misinformation. The Guide identifies three key points related to the role of HPs: information management leadership, content generation, and information dissemination. Telepharmacy also enables collaborative learning, raises awareness of the use of medicines among patients, and promotes patient autonomy. In addition, it improves clinician-patient communication and awareness on the therapeutic needs and therapies of the patient.

Although Telepharmacy is not a novelty, studies conducted before and during the pandemic have yielded promising results, as it reduces medication errors and improves the quality of pharmaceutical care[23,24]. Although some authors are certain that Telepharmacy has come to stay, it should be clarified that it complements face-to-face pharmaceutical care. The best example is that Telepharmacy enables remote drug therapy monitoring, which allows teleconsultation, telemonitoring and other activities that will help provide more individualized care, highlighted in the two Guides.

Some experiences in Spain reveal that ICT-based telemonitoring by hospital pharmacists was effective in improving clinical outcomes. In this line, Gomis et al. reported that Telepharmacy improved treatment adherence and patient understanding and use of medicines, reduced therapeutic complexity and adverse events, and enhanced the satisfaction and experience of complex cases such as heart transplant recipients. More than half of these patients could be monitored remotely, and face-to-face appointments were reserved for selected cases, which reduced wait times at the HP[25]. Collado-Borrell et al. demonstrated that drug therapy monitoring in cancer patients through a mobile app improved treatment

Table 2. Keys, benefits, and recommendations for Telepharmacy service recipients

Keys	Benefits	Recommendations
– Telepharmacy is a complementary service to face-to-face pharmaceutical care that improves outpatient care quality. – Each PHS can develop different Telepharmacy programs within four main scopes of application. – The HP is the healthcare professional responsible for suggesting, offering and leading individual Telepharmacy interventions for each patient. – The use of Telepharmacy is not restricted to specific diseases or medicines. These interventions are considered and supervised by the HPS in coordination with the prescribing physicians, based on the individual needs of each patient and the resources available. – HPS can use the inclusion, exclusion, and prioritization criteria to determine the inclusion, continuity or exclusion of a patient from a Telepharmacy program to ensure that this service is provided to the patients that will benefit the most from it. – The pharmacist must ensure that the patient (legal guardian and/or caregivers, as appropriate) understands the commitment and responsibilities that inclusion in a Telepharmacy program involves and agree to inclusion, either verbally or through informed consent, which will be recorded in the medical history of the patient. – The HP is the healthcare professional responsible for providing to the patient the information and recommendations necessary for the proper development of the Telepharmacy program: consultation planning, counselling, dispensing and delivery planning, recommendations for teleconsultations, among others. – The selection of the technology to be used will depend on the goal of the Telepharmacy services and the resources available at the center and the technical skills of the patients and professionals involved. – The Telepharmacy program developed shall comply with current laws and regulations, guarantee confidentiality and informed consent, and adhere to General Data Protection Law, the Law on Protection of Personal Data and Guarantee of Digital Rights, and the Public Procurement Law. – The Telepharmacy program shall guarantee that ethical standards are met based on the four pillars of bioethics:	– It promotes a more humanized, patient-centered healthcare model. – It increases patient proactivity and empowerment. – It contributes to a healthcare model based on close, continuous contact with the patient. – It improves patient/caregiver satisfaction with the services received. – It reduces time and resource use and diminishes treatment interference with the daily life of patients and their caregivers since it reduces travel. – It increases accessibility and contact with healthcare professionals beyond direct contact through face-to-face pharmaceutical care. – It improves access to healthcare providers, communication, and day-to-day accompaniment. – It promotes communication among professionals (HP, medicine, nursing, psychology, nutrition, social work, and other stakeholders of the health system). – It promotes that care is coordinated and integrated across the different levels of healthcare. – It improves the management of appointments and reduces wait times. – It contributes to safe, outcome-focused therapeutic decision-making, as it favors the verification and monitoring of therapeutic targets (adherence, adverse event control, review of medication, and clinical outcomes reported by the patients, among others). – It improves flexibility in the delivery of medicines to the patient at a more convenient point of delivery. – It improves the total traceability of the dispensing process, enhancing patient safety. – It provides patients with access to truthful information about their drug therapy. – It promotes collaborative learning and sharing experiences with other patients and caregivers.	– Please ask your HP whether there are Telepharmacy programs available in your center you can benefit from. – Please, ask about the actions, information and forms you have to submit to your center to be able to participate in the Telepharmacy program (i.e. name, surname(s), mailing address, e-mail address, telephone number, user name to log in the video call platform). – Once you have been included in a Telepharmacy program, make sure you have the tools necessary to involve in program activities (for instance, mobile phone, computer, wearables, Internet connection, to name a few) and the technical skills and abilities necessary to use technologies. – Read carefully all the information you have received about the program. – In case you have any doubt or question about your treatment, please do not hesitate to contact your pharmacist. Your HP will provide you with the means to contact the person responsible for the Telepharmacy program. If the HP contact details are not available, please, ask your hospital pharmacy to provide them to you. – Find out whether your HPS publishes relevant information through communication channels or networks and ask your HPS about reliable sources of information about your medicines. – Report to your HPS any relevant change in your situation, i.e. treatment shifts, changes in your contact/address, inability to attend a scheduled appointment or collect your medicines, etc. – Please follow the instruction and recommendations of your HP. For instance, if you are engaged in a program of remote dispensing and informed delivery of medicines, please, remember to collect your medicines, follow collection and storage instructions, etc

HP: hospital pharmacist; HPS: hospital pharmacy service.

adherence and health-related quality of life and reduced resource consumption[26].

Telepharmacy makes it possible to anticipate patient needs and provide effective individualized care, which benefits our patients. The benefits of Telepharmacy have been widely demonstrated during the COVID-19 pandemic in the scope of remote dispensing and informed delivery of medication.

Offering different delivery points requires flexibility in logistics to adapt to the patient's needs, which may vary across patients and change over time. Although the different options have their advantages and disadvantages, it is important to note that the delivery of medication is as important as the provision of information and rapid action of multidisciplinary teams. Although Telepharmacy has been successfully implemented during the COVID-19 pandemic[27], some authors highlight that it is necessary to design, develop and integrate Telepharmacy apps that include drug therapy monitoring and remote dispensing and delivery of medication. This would guarantee their traceability and control, reduce demand on the health system, and provide patients with timely access to pharmaceutical care, even when they are far from their health center.

Other key elements have been identified to contribute to attaining the goals described in this Guide. Firstly, to accelerate the development and implementation of Telepharmacy, it is necessary to identify the challenges, barriers, and enablers found in previous initiatives in a more advanced stage. Establishing an observatory of innovative practices is crucial for the HP community to take advantage of the lessons learned and previous experiences of other HPs. In addition, creating digital training centers will help patients and professionals get the most out of Telepharmacy tools. Training courses will enhance the digital skills, resources and abilities required to optimize the use of Telepharmacy technologies.

Finally, innovative, robust, multicentric, multidisciplinary, and international studies are needed to demonstrate the full range of advantages that Telepharmacy offers. Attaining this ambitious goal will require the leadership and support of the different scientific societies and healthcare entities.

This practical guide for professionals and patients was developed to ensure the standard development, implementation, and spread of Telepharmacy in all its scopes of application. This Guide is intended to help Hospital Pharmacy professionals benefit from Telepharmacy as a complementary tool to face-to-face pharmaceutical care.

Funding

Acknowledgements

Conflict of interests

No conflicts of interest.

Bibliography

1. Naciones Unidas Ageing [internet] [accessed 02/28/2022]. Available at: https://www.un.org/es/sections/issues-depth/ageing/index.html

2. Sociedad Española de Farmacia Hospitalaria. Desarrollo 2020: hacia el futuro con seguridad [monografía en Internet]. Madrid: 2008 [accessed 02/28/2022]. Available at: https://www.sefh.es/sefhpdfs/desarrollo_2020.pdf

3. Sociedad Española de Farmacia Hospitalaria. Mapa Estratégico de Atención al Paciente Externo. Madrid [accessed 02/28/2022]. Available at: https://www.sefh.es/mapex/index.php

4. Morillo-Verdugo R, Calleja-Hernández MÁ, Robustillo-Cortés MLA. A new pharmaceutical care concept: more capable, motivated and timely. Hosp Pharm. 2019;54(6):348-50. DOI: 10.1177/0018578719867657.

5. World Health Organization. WHO Library. Telemedicine. Opportunities and Developments in Members States. Geneva (Switzerland); 2010 [accessed 02/28/2022] Available at: https://www.ashp.org/-/media/assets/policyguidelines/docs/statements/telepharmacy.pdf

6. Alexander E, Butler CD, Darr A, Jenkins MT, Long RD, Shipman CJ, et al. ASHP Statement on Telepharmacy. Am J Health Pharm. 2017;74(9):e236-41.

7. Canadian Society of Hospital Pharmacists. Telepharmacy: Guidelines. 2018 [accessed 02/28/2022]. Available at: https://cshp.ca/site/res/official-publications/guidelines

8. Sociedad Española de Farmacia Hospitalaria. Posicionamiento de la Sociedad Española de Farmacia Hospitalaria sobre Telefarmacia. [web page]. Madrid: 2020 [accessed 02/28/2022]. Available at: https://www.sefh.es/bibliotecavirtual/posicionamientos_institucionales/12-POSICIONAMIENTO_TELEFARMACIA_20200510.pdf

9. Margusino-Framiñán L, Fernández-Llamazares CM, Negro-Vega E, Tortajada-Goitia B, Lizeaga G, Mercadal-Orfila G, et al. Outpatients' opinion and experience regarding Telepharmacy during the COVID-19 pandemic: The Enopex Project. J Multidiscip Healthc. 2021;14:3621-32. DOI: 10.2147/JMDH.S343528

10. Sociedad Española de Farmacia Hospitalaria. Modelo de priorización de pacientes en Telefarmacia. Madrid [accessed 02/28/2022]. Available at: https://www.sefh.es/mapex/cmo-oportunidad.php

11. Sociedad Española de Farmacia Hospitalaria Guía de entrevista telemática en atención farmacéutica. Madrid [accessed 02/28/2022]. Available at: https://www.sefh.es/mapex/cmo-oportunidad.php

12. Sociedad Española de Farmacia Hospitalaria Prestación eficiente y segura de la Telefarmacia. Madrid [accessed 02/28/2022]. Available at: https://www.sefh.es/mapex/cmo-oportunidad.php

13. Sociedad Española de Farmacia Hospitalaria. Cuadro de mandos de indicadores en Telefarmacia. Madrid [accessed 02/28/2022]. Available at: https://www.sefh.es/mapex/cmo-oportunidad.php

14. Sociedad Española de Farmacia Hospitalaria. Validación de herramientas tecnológicas en Telefarmacia. Madrid [accessed 02/28/2022]. Available at: https://www.sefh.es/mapex/cmo-oportunidad.php

15. Sociedad Española de Farmacia Hospitalaria. Guía de Telefarmacia para profesionales. Madrid [accessed 02/28/2022]. Available at: https://www.sefh.es/mapex/cmo-oportunidad.php

16. Sociedad Española de Farmacia Hospitalaria. Guía de Telefarmacia para pacientes. Madrid [accessed 02/28/2022]. Available at: https://www.sefh.es/mapex/cmo-oportunidad.php

17. Le T, Toscani M, Colaizzi J. Telepharmacy: A New Paradigm for Our Profession. J Pharm Pract. 2020;33(2):176-82. DOI: 10.1177/0897190018791060

18. Gómez Huelgas R, Díez Manglano J, Carretero Gómez J, Barba R, Corbella X, García Alegría J, et al. The Hospital of the Future in 10 points. Rev Clin Esp (Barc). 2020;220(7):444-9. DOI: 10.1016/j.rce.2020.04.009

19. Sociedad Española de Farmacia Hospitalaria. Encuesta de situación de telefarmacia. [web page]. Madrid: 2020 [accessed 02/28/2022]. Available at: https://www.sefh.es/encuesta-telefarmacia-durante-pandemia-covid-19/informes/todas-las-comunidades-resultado-encuesta.pdf

20. Koster ES, Philbert D, Bouvy ML. Impact of the COVID- 19 epidemic on the provision of pharmaceutical care in community pharmacies. Res Soc Adm Pharm. 2021;17(1): 2002-4. DOI: 10.1016/j.sapharm.2020.07.001

21. Prades J, Borràs JM, Coll C. Multidisciplinary teams (MDTs) and the potential impact of new technologies and systems for improving integrated cancer care. Report WP8 Task 3 [internet]. Innovative Partnership for Action Against Cancer (IPAAC); 2019 [accessed 04/04/2022]. Available at: https://www.ipaac.eu/res/file/outputs/wp8/multidisciplinary-teams-impact-new-technologies-systems-improvement-integrated-cancer-care.pdf

22. Ibrahim OM, Ibrahim RMZ, Al Meslamani A, Al Mazrouei N. Role of telepharmacy in pharmacist counselling to coronavirus disease 2019 patients and medication dispensing errors. J Telemed Telecare. 2020:1357633X20964347. DOI: 10.1177/1357633X20964347

23. Alanazi A, Albarrak A, Alanazi A, Muawad RMA. Knowledge and attitude assessment of pharmacists toward telepharmacy in Riyadh City, Saudi Arabia. Eur J Hosp Pharm. 2021;7(suppl 1):2021. DOI: 10.1136/ejhpharm-2021-eahpconf.303

24. Mohamed Ibrahim O, Ibrahim RM, Abdel-Qader DH, Al Meslamani AZ, Al Mazrouei N. Evaluation of Telepharmacy services in light of COVID-19. Telemed J E Health. 2021;27(6):649-56. DOI: 10.1089/tmj.2020.0283

25. Gomis-Pastor M, Mirabet Pérez S, Roig Minguell E, Brossa Loidi V, López López L, Ros Abarca S, *et al*. Mobile Health to Improve Adherence and Patient Experience in Heart Transplantation Recipients: The mHeart Trial. Healthcare (Basel). 2021;9(4):463. DOI: 10.3390/healthcare9040463

26. Collado-Borrell R, Escudero-Vilaplana V, Ribed A, González-Anleo C, Martín-Conde M, Romero-Jiménez R, *et al*. Effect of a Mobile App for the Pharmacotherapeutic Follow-Up of Patients With Cancer on Their Health Outcomes: Quasi-Experimental Study. JMIR Mhealth Uhealth. 2020;8(10):e20480. DOI: 10.2196/20480

27. Unni EJ, Patel K, Beazer IR, Hung M. Telepharmacy during COVID-19: a scoping review. Pharmacy (Basel). 2021;9(4):183. DOI: 10.3390/pharmacy9040183