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Supplementary Table 2. Major findings of the included literature

	Type of eHealth involved					Tool(s)	Intervention	Output summary
	Tele-education	Tele-consultation	Tele-monitoring	Tele-case-management	Tele-mentoring			
1	✓	✓	✓			▪ Phone calls	▪ Consultation ▪ Comprehensive assessment ▪ Medication review and management ▪ Patient monitoring ▪ Medication education	Elderly or immunocompromised patients referred to the clinic or anticoagulation emergencies were managed by hospital pharmacists through telephone calls. The number of patients who needed to physically attend the clinic significantly reduced.
2		✓	✓	✓		▪ Phone calls ▪ Videoconference	▪ Patient monitoring	Patients of the pulmonary clinic were converted to eHealth and monitored by hospital pharmacists.
3	✓					▪ Social media (Twitter) ▪ Television	▪ Public education	20 interviews with pharmacists specializing in infectious diseases were broadcasted through the local television health reporters, national news media, magazines, and tweets to provide education to the general public.
4		✓	✓	✓		▪ Website monitoring applications (The online platform "SPHCC Patient Care" based on six licensed internet hospitals) ▪ Mobile application (WeChat)	▪ Consultation ▪ Comprehensive assessment ▪ Patient monitoring ▪ Medication order review ▪ Emotional support	Pharmacists (both clinical and traditional Chinese medicine (TCM)) continued to care for patients with COVID-19 using the website application. The need for patients to come to hospitals for treatment and follow-up was reduced.

No						Means	Services	Outcomes
5		✓	✓		✓	▪ Videoconference ▪ Phone calls *With the integration of The electronic medical record (EMR) system*	▪ Consultation ▪ Information sharing	All clinical pharmacy services continued to be provided through different means of eHealth without interruptions
6		✓			✓	▪ Website monitoring applications (Primary Health Care Center network in the healthcare area (CCSS))	▪ Consultation	During eight weeks, 3,095 patients were treated with pharmacists through eHealth (55% of the total), and 195 received their medication at home. Extraordinary perception of quality of the new model was received through multiple signs of appreciation from patients.
7	✓		✓	✓		▪ Phone calls; ▪ Videoconference (Zoom); ▪ Mobile applications (Skype, Facetime)	▪ Consultation ▪ Comprehensive assessment ▪ Patient monitoring	Patients on warfarin therapy were continuously monitored by hospital pharmacists. Patient self-reported questionnaire scores found positive patient satisfaction with pharmacist eHealth care.
8		✓	✓	✓	✓	▪ Website monitoring applications ▪ Email ▪ Fax *With the integration of The electronic medical record (EMR) system*	▪ Consultation ▪ Medication review and management ▪ Medication order review ▪ Information sharing	Follow-up appointments for patients who needed to visit the pharmacist clinic were conducted virtually by hospital pharmacists. The percentage of follow-up appointments done virtually increased to 64% in 2020 from 1.5% in 2019.

9	✓	✓	✓		✓	▪ Videoconference (ZOOM) *With the integration of The electronic medical record (EMR) system*	▪ Medication review and management ▪ Medication education	During the period of March 31 through April 28, 2020, clinical pharmacist telehealth services were offered to 139 patients. Of these patients, 83% (n = 116) completed telehealth visits, which reveals eHealth can ensure the continuous provision of pharmacy services during the epidemic.
10	✓	✓	✓	✓		▪ Phone calls ▪ Videoconference	▪ Medication review and management ▪ Medication order review	A total of 20 patients were consulted via eHealth by pharmacists specializing in cystic fibrosis as part of the clinic appointment between April and June 2020, which demonstrates that a virtual medication tour led by a pharmacist can be successfully incorporated into telehealth visits and be accepted by a majority of patients.
11	✓	✓	✓	✓	✓	▪ Mobile applications (Cisco Jabber 12.6, Doximity) ▪ Videoconference (Zoom)	▪ Consultation ▪ Medication review and management ▪ Medication order review ▪ Medication education	A total of 265 clinical pharmacy specialists' interventions involving COVID-19 healthcare team (both ICU and non-ICU) were performed sparing in-person patient visits for medical care for 199 patients.
12				✓	✓	▪ Mobile applications (PetalMD, Facebook) ▪ Email ▪ Videoconference	▪ Medication order review ▪ Information sharing	An analysis of the number of validated prescriptions showed that the pharmacists validate significantly 27% more prescriptions in telework when compared to a centralized workstation in the hospital without impacting the performance of the pharmacists in hospital.

13	✓	✓				▪ Phone calls ▪ Videoconference ▪ Mobile applications ▪ Website monitoring applications	▪ Consultation ▪ Medication review and management	Regarding over-the-counter medicines in pharmacies, the rates of potential abuse with and without eHealth services were 7.7% and 5.8% respectively; the rates of potential misuse with and without eHealth services were 16.6% and 13.7% respectively.
14		✓	✓			▪ Phone calls ▪ Website applications	▪ Consultation ▪ Comprehensive assessment ▪ Patient monitoring	Patients' experience with the pharmaceutical service through eHealth was remarkably positive.
15	✓	✓				▪ Website monitoring applications (Cloud Sun Yat-sen University Cancer Center (SYSUCC)) *With the integration of the electronic medical record (EMR) system*	▪ Consultation ▪ Medication review and management ▪ Medication order review ▪ Medication education	Patient with cancer treated with prescription medicines were managed by hospital pharmacists via the pharmacy service platform in the Cloud SYSUCC. 88% (88/100) of the patients were very satisfied with the remote pharmacy services provided.
16	✓	✓	✓	✓	✓	▪ Mobile applications (The "Online Pharmaceutical Monitoring"); ▪ Radio (Fangcang shelter radio station)	▪ Consultation ▪ Medication review and management ▪ Medication education ▪ Emotional support ▪ Information sharing	The online pharmaceutical service model not only effectively reduce the chance of hospital-acquired infections, but also improve the efficiency of pharmacy services, and achieve timely and effective professional medication guidance for patients throughout the entire process.

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No.						Technologies	Services	Outcomes
17			✓	✓	✓	▪ Phone calls ▪ Videoconference	▪ Comprehensive assessment	eHealth measures performed by hospital pharmacists for diabetic patients helped address 26 COVID-prompted social determinants of health (SDOH) concerns across 66 patients.
18	✓			✓	✓	▪ Phone calls ▪ Videoconference (A de novo Cardio-Oncology Clinic with Virtual-Hybrid Approach)	▪ Medication review and management ▪ Medication order review ▪ Patient monitoring ▪ Medication education ▪ Information sharing	35% of patients with cancers or cardiovascular toxicities who needed to visit Cardio-Oncology clinic were cared for by hospital pharmacists via eHealth, which reveals the Virtual-Hybrid Approach to build a de novo Cardio-Oncology Clinic is very useful during the pandemic.
19				✓		▪ Electronic health record (EHR) systems	▪ Medication order review	The centralised electronic health record has improved streamlined care during patient transitions between the two hospitals with enhanced continuity of documentation and management.
20	✓	✓	✓	✓	✓	▪ Phone calls ▪ Videoconference (The Intermountain Medical Center (IMED)) ▪ Wearable devices (The Vocera Badge) ▪ Website monitoring applications (The VigiLanz clinical surveillance platform)	▪ Consultation ▪ Medication review and management ▪ Medication order review ▪ Medication education ▪ Information sharing ▪ Infectious disease surveillance	The plan to provide remote clinical pharmacy services help clinical pharmacists to readily communicate with nurses, physicians, other caregivers, and patients; allow clinical pharmacists to continue to participate in daily rounds, provide consultations under collaborative practice agreements, verify medication orders, collect medication histories, provide antimicrobial stewardship, and deliver medication education to patients from off-site locations; and allow for optimal care of hospitalized patients and promote social distancing, which may have the added benefit of decreasing the

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								spread of SARS-CoV-2 among patients and caregivers.
21	✓	✓	✓			▪ Phone calls	▪ Consultation ▪ Comprehensive assessment ▪ Medication education	Pharmacists specializing in oncology performed 149 medication history and baseline assessments, and 72 medication therapy counsels remotely for patients receiving systemic cancer treatment through eHealth in 2 months, which demonstrates that clinical pharmacy service levels could be maintained by incorporating remote delivery approaches without significant investment in resources.
22			✓	✓		▪ Phone calls ▪ Mobile applications (Doximity or Google Voice) ▪ Email	▪ Comprehensive assessment ▪ Medication review and management ▪ Medication order review	From March to September 2020, pharmacists specializing in cardiothoracic transplant conducted 385 virtual visits on 157 Lung transplant providers (LTP) with an average of 20 minutes spent per visit. There were 891 total interventions made by the pharmacists and 778 medication discrepancies were identified.
23				✓	✓	▪ Phone calls ▪ Videoconference *With the integration of the electronic medical record (EMR) system*	▪ Medication review and management ▪ Information sharing ▪ Remote label printing	Pharmacists specializing in informatics ensured the timely supply of medications using real-time data support, which reveals informatics pharmacists have the potential to assist with maintaining high quality patient care during this pandemic, and in future disasters.

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No.						Modality	Services	Description
24	✓			✓	✓	▪ Phone calls	▪ Consultation ▪ Medication education	Hospital pharmacists adopted eHealth to increase patients' understanding of the pandemic and help mitigate infection exposure among patients, assuring the continuity of care in patients with established cardiovascular diseases.
25		✓	✓			▪ Phone calls ▪ Videoconference	▪ Consultation ▪ Medication education ▪ Information sharing	Community pharmacists continued to conducted medication reviews with remote pharmaceutical services for 44.2% vulnerable patients, which greatly minimizes direct patient-provider contact.
26			✓			▪ Videoconference ▪ Mobile applications	▪ Patient monitoring	Both community and hospital pharmacists continued to monitor patients with COVID-19. Most of the participants (70.6%) expressed favourable attitudes towards telepharmacy.
27				✓	✓	▪ Videoconference *With the integration of the electronic medical record (EMR) system*	▪ Medication review and management ▪ Information sharing	Before the beginning of the crisis, 83.2% (n = 154) of hospital pharmacy services did not carry out remote pharmaceutical care activities. However, after the outbreak, as many as 87.6% of hospital pharmacists carried out remote pharmaceutical service and 119,972 patients received their medications through remote dispensing eHealth services, representing over 80% of outpatients receiving their medication through eHealth procedure, which shows the rate of implementation of telepharmacy in outpatient care in Spain during the study period in the pandemic was high.

No					Technology	Service	Outcome
28	✓		✓		✓	▪ Mobile applications (WeChat) ▪ Radio	▪ Consultation ▪ Medication review and management ▪ Patient monitoring ▪ Medication education ▪ Emotional support ▪ Information sharing	During a 35-day period, pharmacy service was provided by hospital pharmacists to patients with chronic diseases via eHealth that resulted in round 200 enquires resolved by clinical pharmacists, including drug usage (65.38%), medication reconciliation (55.13%), drug precautions (23.1%), adverse drug reactions (35.9%) and psychological counselling (32.05%).
29	✓	✓	✓	✓		▪ Phone calls ▪ Mobile applications (WhatsApp, short messages services (SMS))	▪ Medication review and management ▪ Medication order review ▪ Medication education	Hospital pharmacists on the eHealth teams conducted 3318 phone calls, 2116 WhatsApp® chats and 1128 interventions related to pharmacy practice for patients with COVID-19 who lived in rural areas. As a results, 312 prescribing errors (PEs) were identified, of which 287 were corrected.
30		✓	✓	✓		▪ Phone calls Videoconference ▪ Website monitoring applications	▪ Consultation ▪ Medication review and management ▪ Medication order review	7908 MDEs (any unintended deviation from an interpretable written prescription or medication order) were detected in the remote eHealth group (50,026 dispensed items), and 4563 were reported in the control group which did not provide ehealth services (23,481 dispensed items) during the pandemic, which reveals having eHealth services available is better than none.
31		✓	✓	✓		▪ Videoconference	▪ Consultation ▪ Medication review and management ▪ Medication order review	Pharmacies provided 63,714 COVID-19–related recommendations with eHealth services compared with 15,539 in the control group that without remote pharmaceutical service, which reveals greater demand for pharmaceutical

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							service with eHealth during the pandemic.
32			✓		▪ Specific IT support (Virtual–Venipuncture INR)	▪ Comprehensive assessment	Following the onset of COVID, 84 patients received care through eHealth, such as telephone and video by the anticoagulation clinic a total of 192 times, which indicates it is possible of managing chronic warfarin patients utilizing a hybrid virtual care model during the COVID-19 pandemic.
33	✓	✓	✓	✓	▪ Mobile applications (Signal and Google Voice, Doximity)	▪ Comprehensive assessment ▪ Medication review and management ▪ Medication order review ▪ Information sharing	Total of 211 HIV patients with medication refill requests sent to the clinical pharmacists, and half of them had one or more telehealth visits with clinical pharmacist, which reveals remote services can be an alternative for stable HIV-positive patients as a supplement to in-person visits.
34	✓	✓	✓	✓	▪ "Cloud Pharmacy Care" platform (a medication consultation service platform WeChat)	▪ Consultation ▪ Medication education	The "Cloud Pharmacy Care" platform had 1,432 views and 66 followers. During a 2-monther period, 39 cases of consultation were performed by volunteer pharmacists through this platform for chronically-ill patients quarantined at home. All consultations were completed within 4 h and 97.4% of patients found the eHealth services satisfactory.

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#						Technology	Services	Outcome
35			✓	✓		▪ Phone calls	▪ Comprehensive assessment ▪ Medication review and management ▪ Medication order review ▪ Medication education	1186 patients requested remote pharmaceutical service with eHealth due to the treatment changes have been made during the pandemic, and most of them are very satisfied with the remote service, which proves that eHealth can adapt well to the pharmaceutical changes brought about by the epidemic.
36			✓	✓		▪ Phone calls	▪ Consultation ▪ Comprehensive assessment ▪ Patient monitoring	During a 6-month period, 173 encounters between hospital pharmacists and patients took place through eHealth. Upon evaluation, the average medication related problems (MRPs) per encounter resolved through face to face (FTF) visits (1.70 [±1.56]) was significantly higher than that through telehealth (1.07 [±1.20]).
37		✓				▪ Phone calls ▪ Mobile application	▪ Consultation	Between March and September in 2019, 1,375,071 calls by the general public and visitors were handled by pharmacists. During the same time period in 2020, 5,446,275 similar calls were received, representing an increased of >296% increase, which shows pharmaceutical services with eHealth is the one of the best strategies to combat the COVID-19 pandemic in Saudi Arabia.
38	✓	✓	✓	✓	✓	▪ Phone calls ▪ Videoconference *With the integration of the electronic medical record (EMR) system*	▪ Consultation ▪ Medication review and management ▪ Medication order review ▪ Patient monitoring ▪ Medication education	Clinic pharmacists continued to perform medication management for geriatric patients with chronic conditions. Enhanced access to patient care, reduced risk of hospital-acquired infections, enhanced medication adherence and increased the patient care quality during a health crisis were described.

39	✓	✓	✓		- Radio "Cloud pharmacy care" application - Mobile application (WeChat) - Service robots	- Consultation - Medication education - Information sharing	Hospital pharmacists continued to care for pediatric patients with COVID-19 via eHealth. Positive outcome such as optimized procurement procedure, improved efficiency, and reduced risk of infection by minimizing human contact was described.
40		✓	✓	✓	- Phone calls - Videoconference - Mobile application (Short messages services (SMS))	- Consultation - Medication order review	926 participants completed the questionnaire satisfaction survey, and 457 (49.4%) respondents are satisfied with the advice provided by pharmacists, which proves remote pharmaceutical service with eHealth is appreciated by patients.
41		✓	✓		Phone call	- Consultation - Comprehensive assessment Information sharing - Infectious disease surveillance	A total of 100 community pharmacies were phoned, and 59 % of the pharmacists retrieved both symptoms and treatment-related medical information, which means more than half of pharmacists can provide some pharmacy services through eHealth, however, still need a great improvement.
42		✓	✓		- Phone calls - Mobile applications (WhatsApp) - Hospital electronic system (BestCare)	Comprehensive assessment Medication review and management	In total, 270 patients' mean of the INR values was 60%, and the patients were in the therapeutic range nearly 60% of the time. Also, of the sample, nearly half achieved intermediate to good anticoagulation control with a TTR above 50%, which means the services provided by pharmaceutical care could be improved by using a tele-pharmacy model, as this enables the utilization of technology for patients.

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| 43 | ✓ | ✓ | | ✓ | ✓ | ▪ Phone calls | ▪ Consultation
▪ Medication review and management
▪ Medication order review
▪ Patient monitoring
▪ Medication education
▪ Emotional support | 10 pharmacists from 7 community pharmacies offered eHealth service to 71 patients from April 13, 2020, up to May 21, 2020, which reveals remote pharmaceutical care service (telepharmacy) is deemed a convenient model in the Republic of Srpska during the COVID-19 pandemic. |