

Table 2: Advantages, Outcomes, Obstacles, and the Required Facilities Reported for Telehealth Services in PHC

Author	Reported advantage/ benefit	Obstacle	Hardware/software/facilities
Chan ²⁷	Easy to use, empowers patient	Lack of enough resources; lack of awareness; privacy; standard-based encryption	A dual-monitoring Tandberg 880 videoconferencing set-top unit; large screen television; high-resolution portable Canon camera
Cottrell ²⁸	Flexible, convenient, easy to use, and acceptable means for managing hypertension with collaboration with responsible health professionals	Not all patients provided feedback using all the means employed; some missing data	Home electronic BP measurements and mobile phones
Calvoa ²⁹	Improved the care of patients with severe COPD; improvement in many clinical outcomes; reduction in emergency room visits, hospitalizations, and length of stay	NM	Spirometer; pulse-oximeter; heart rate monitor; blood pressure monitor; modem and telephone line
Schuttner ³⁰	Assisting to clinical care in rural areas and potential for epidemiologic and health system applications; improved service outreach; guided clinical activities; and facilitated data collection	Required multiple updates; required literacy and technological proficiency levels	Computers; network; cellular local server; cellular modems; mobile phone
Klein-Wiele ³¹	Decreased hospital admissions, decreased emergency treatments and cardiology referrals	Inability to activate the device and send symptoms	Tele-EKG-Card 100IRT TM (Vitaphone, Mannheim, Germany)
Huis in't Veld ³²	Ease of use, usefulness, time saving, positive impact on the perception of pain intensity and disability	NM	Local area network (wearable sensor, processing unit, feedback unit), wireless communications platform, server
Tabak ³³	Increased self-care, enhanced motivation for exercise, and ease of consultation	Security; internet access; computer access	Computer and internet access

Uscher-Pines ³⁴	Simple and inexpensive, easy to access, and easy to use	Lack of covering all symptoms related to disease in the Teladoc program	Phone or video via internet
Robert Harrison ³⁵	Improved communication among physicians of primary and secondary care for enhancing the quality of health care, continuous education of health care providers; cost-effectiveness of health services; and high satisfaction by patients, specialists, and general practitioners	Technical failure such as loss of voice or image; inability of consultants to perform a virtual physical examination	Standard commercial videoconferencing equipment for desktop PCs. This consisted of screen call software, a card to go inside the computer, a telephone handset, and a small video camera that could be mounted on the top or side of a computer monitor.
Izquierdo ³⁶	Improved glycaemic control and achievement in behavioral change goals, and improved diabetes care	There was no access to the electronic health record, so the care team was unable to complete patient information.	Web camera, home glucose meter, and blood pressure cuff connected to the home telemedicine unit through an RS-232 serial port
de Lusignana ³⁷	Realization of home telemonitoring	Equipment failed due to battery failure that followed by a loss of data in the device memory; video consulting over ordinary telephone lines did not show sustained benefit and was not complied with.	TV-phone 8*8 inch (Model number VC105)

Anogianakis ³⁸	Reduced cost of transferring patients out of prison; improved the quality of care for prisoners	Resistance of health care personnel on the provision of support for telemedicine; Ministry of Health resistance; inability of National Health System to interface with the computerized record keeping system of the prison telemedicine program; prison staff resistance to implementation of telehealth; inadequate support from Ministry of Justice leadership and bureaucratic obstacles by low ranked personnel in justice system	Two beds, pharmacy, small clinic equipped with telemedicine network for consultation
Trief ³⁹	Improved self-management	Not generalizable	Phone and computer
Glynn ⁴⁰	Cheap, user-friendly technology to promote physical activity in primary care	Not generalizable	Smartphone
Mussulman ⁴¹	Increased motivation, improved access to high quality smoking cessation treatment in rural areas	NM	Computers, web cams, printers; telephones; polycom PVX software, large bandwidth, a telemedicine technician for internet resource management

Pratt ⁴²	Improved self-management, reduced number of hospital admissions, reduced emergency room visits, improved quality of life	NM	Remote health device connected to the phone
Levy ⁴³	Improve self-care	Safety and confidentiality of sensitive health data	Mobile; Skype software
Bove ⁴⁴	Better and faster treatment and management of hypertension; reduction of heart disease	NM	Sphygmomanometer; pedometer, telephone, internet, fax
Al Alawi ⁴⁵	Providing the efficient means of detecting and treating diabetic retinopathy; improving patient information sharing; improving patient status; educating family physicians	NM	Canon camera, computer, internet
Hatef ⁴⁶	Effective and efficient screening of diabetic patients in low-income areas covered by a family physician; screening people in primary care centers without the need for an eye specialist, promoting health, cost-effective	Improved screening	Camera, data transfer software, internet, phone
Odnoletkova ⁴⁷	Increased access to health services	NM	Package with information about the program, a book with advice on nutrition in diabetes and a waist circumference meter with a BMI calculator
Quinn ⁴⁸	Motivation and confidence in elderly people, for self-management; positive attitude towards mobile technology	Anxiety and literacy related to technology may be avoidable barriers	Internet, mobile, personal portal, personal communication service
Wakefield ⁴⁹	Enhanced detection of diabetes	NM	Standard telephone line, blood glucose measurements

Deen ⁵⁰	Improving access to psychotherapy services; patient satisfaction	Rejecting people	Telephone, video equipment in the primary care office
Tudiver ⁵¹	Telemedicine may be a useful, effective way to deliver healthcare; enhanced patient knowledge; improved self-management	NM	Phone service, web portal, email, fax
Nagrebetsky ⁵²	Improved self-monitoring, improved clinical outcomes	NM	Mobile telephone, blood glucose meter, mobile 3G network, web-based monitoring system
Bujnowska-Fedak ⁵³	Improved access to primary healthcare; enhanced physician confidence; educating family physicians; making efficient use of expensive resources; and providing easier medical care	NM	Telephone transmission system, communication protocols, configuration equipment and communications, audio equipment, video and audio computers, high quality video systems, and dedicated lines
Huber ⁵⁴	Positive change in physical habits among obese primary care patients.	NM	Telephone
Etherington ⁵⁵	Ease of use	NM	Standard PC, video capture, ISDN connection
Ruas ⁵⁶	NM	NM	PC, the store-and-forward teleconsultation tool (BH Telessau´de), personnel management system of the municipal Department of Health

Salisbury ⁵⁷	Reduced cardiovascular risk, cost-effective benefit in cardiovascular risk reduction, feasibility of delivering an intervention on a wide scale at relatively low cost and using non-clinically trained health advisors supported by computerized algorithms, increases the capacity of the healthcare system to provide an intervention to large numbers of people	Lack of internet access	Telephone, internet, email address, computer systems
Salisbury ⁵⁸	Acceptable to patients and providers; cost-effective; promoted self-management; treatment optimization; care coordination	Not all patients in UK have access to reliable internet connections	NM
Iannitto ⁵⁹	Empowering patient to take an active role in managing their health; saving time for the primary care providers in delivering patient care; opening appointment slots for patients; improving ability to serve patients with diabetes by initiating insulin in a timely manner; high satisfaction with the telehealth system reported by patients and providers	Lack of reimbursement	Telephone and a functioning glucometer
Langkamp ⁶⁰	High level of satisfaction with the program; decreased stress to the child and the parents; increasing the likelihood of a successful medical examination due to greater cooperation by the child.	NM	Digital otoscope, telephonic stethoscope, digital camera, and videoconference camera.
Larsen ⁶¹	Increased self-care	NM	Mobile phone with pre-loaded software; blood glucose meter and a Bluetooth cradle to link the meter to the phone
Dario ⁶²	Reduced hospitalizations; reduced emergency departments' and specialty care visits; contributing to significant cost reduction; improved adherence to therapy; improved healthcare services' efficiency through better	NM	Glucometer and a gateway for data transmission to a regional eHealth center.

	management of chronic diseases; diminished direct costs; decreased travel times for both health professionals and patients		
Blomdahl ⁶³	Reliable system; economic benefits	NM	Three ISDN lines, video camera, Aslit-lamp microscope connected to a Sony three-chip video-camera
Thijssing ⁶⁴	Reduced physical referrals; improved quality of care for these patients; supported GPs in interpreting spirometry results, diagnosing patients and making treatment decisions; improved the communication between GP and pulmonologist	NM	Spirometer that could be linked to a computer, hypertext transfer protocol secured, web-based teleconsultation system-mail and phone
Hussain ⁶⁵	Assistance in training and supervision of GPs; support of GPs for understanding urinary tract ultrasound anatomy and gaining competency in the correct use of an ultrasound machine; provided opportunities for continuous professional development, accreditation and reaccreditations of the GP's ultrasound skills	NM	Ultrasound scanner and a uro-flowmeter, ISDN at 128 Kbit/digital ultrasound machine
Backman ⁶⁶	Supporting diagnoses by GP; assisting in clinical evaluation of cardiac patients; bridging the gap between primary care and specialists; reduction of referrals to secondary care; reduction of misdiagnosis; ease of use; time saving; money saving; benefits to physicians and patients in terms of accessibility, speed of diagnosis, efficiency of management, and resource release	Time consuming	Telephone line, email, or fax
Pecina ⁶⁷	Facilitated access to consultants; facilitated communication of primary care physicians with counselors	Problem in image quality	Any iOS 7.2 or higher device; iPhone operating system

Cottrell ⁶⁸	Reduced blood pressure of patients with hypertension; improved accuracy of diagnosis	NM	Electronic sphygmomanometer; mobile phone; software and BP recording devices
Bujnowska-Fedak ⁶⁹	Patient satisfaction; improved patient-physician communication; improved quality life; disease control	Lack of resources for actual analysis	Personal computer, internet, wireless glucose monitor, and transmitter