


# BMJ Open Protocol for a scoping review of the use of information and communication technology platforms for the delivery and utilisation of transgender healthcare

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## ABSTRACT

**Introduction** In recent years, there has been strong interest in making digital health and social tools more accessible, particularly among vulnerable and stigmatised groups such as transgender people. While transgender people experience unique physical, mental and sexual health needs, not much is currently known about the extent to which they use information and communication technologies such as short messaging service and videoconferencing to access health services. In this paper, we discuss our protocol for a scoping review of the literature about the delivery and utilisation of digitally mediated health services for transgender populations.

**Methods and analysis** This scoping review of the provision and experience of telemedicine among transgender people will follow the methodological framework developed by Arksey and O'Malley. The search will be conducted using three online databases, namely PubMed, CINAHL and Scopus, with additional literature explored using Google Scholar to identify grey literature. Relevant English-language studies will be shortlisted after completing a title and abstract review based on defined inclusion criteria. Following that, a final list of included studies will be compiled after a full-text review of the shortlisted articles has been completed. To enable the screening process, a team of researchers will be assigned refereed publications explicitly referring to the provision and experience of transgender healthcare through telemedicine. Screening performed independently will then collaboratively be reviewed to maintain consistency.

**Ethics and dissemination** The research is exempt from ethics approval since our analysis is based on extant research into the use of digital technologies in providing healthcare to transgender people. The results of this study will be disseminated through peer-reviewed academic publications and presentations. Our analysis will guide the design of further research and practice relating to the use of digital communication technologies to deliver healthcare services to transgender people.

## INTRODUCTION

Transgender is 'an umbrella term for persons whose gender identity, gender expression or behaviour does not conform to that typically associated with the sex to which they were

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This is among the first scoping reviews of the digital communication tools and methods used in the delivery of healthcare services to transgender populations.
- ⇒ This scoping review will identify methods that have been effective in improving healthcare uptake among transgender populations.
- ⇒ This scoping review will inform further research on health promotion regarding how providing healthcare to transgender populations can be improved.
- ⇒ This scoping review may be limited to literatures from resource-privileged and English-speaking countries because not all contexts have the resources and infrastructure to support research on, and the delivery of, telemedicine for transgender communities.

assigned at birth'.<sup>1</sup> While gender identity can be understood as a person's internal sense of being a man, woman or something else, gender expression refers to how a person indicates gender identity to others in society through overall behaviour, clothing, hairstyle, voice and other body characteristics.<sup>1</sup>

Despite the increasing social acceptance of gender diversity in various parts of the world, transgender people often experience social exclusion due to the stigma associated with transgressing social norms of gender.<sup>2-5</sup> This stigmatisation generally refers to a social process embedded in various social structures (ie, family, religion, gender and law) through which social actors label and ostracise certain population segments, thereby impeding transgender persons' access to power and resources.<sup>4</sup> Researchers have for years been revealing that stigma associated with being transgender contributes to social disadvantage in many areas, including family, education and the formal job market, that have consequences for health.<sup>6-9</sup>



The studies reveal that negative treatment of transgender people in society further results in adverse health outcomes. For instance, transgender people who are rejected by their families are more likely to experience mental illness including depression, anxiety and suicidal ideation.<sup>6 10 11</sup> The minority stress theory posits that transgender people routinely experience stressful events including prejudice and discrimination—not usually encountered by their cisgender counterparts—that negatively affect their psychological well-being.<sup>12</sup> Various researchers have used minority stress theory and found a significant association between social stress and psychiatric problems among transgender people.<sup>13–15</sup> Additionally, a lack of family support, as well as joblessness, means that transgender people may engage in survival sex, placing them at greater risk of HIV and other sexually transmitted infections (STIs),<sup>9 16–18</sup> with the Joint United Nations Programme on HIV/AIDS finding that nearly 19% of the transgender women worldwide live with HIV.<sup>19</sup> Also, transgender people's likelihood of substance misuse often increases due to a lack of social support, lack of adequate financial resources, health issues and peer pressure.<sup>20–22</sup>

In addition to the heightened risk of HIV/STIs, mental distress and drug/alcohol use, transgender people often have unique health needs regarding gender affirmation. The fundamental aim of gender affirmation is to affirm a person's sense of self.<sup>23</sup> Understanding gender affirmation is not always straightforward, as transgender people may choose various ways including social/legal/medical interventions to achieve it.<sup>24</sup> For youth, gender affirmation may encompass social and/or medical transitions (ie, puberty blockers, gender-affirming hormone treatment and sometimes surgery).<sup>25</sup> To address ethical dilemmas about transitioning before legal adulthood, families, schools and medical/clinical institutes are involved in providing gender affirmation to transgender youth.<sup>25 26</sup> In addition to social and medical transitions, transgender adults may also pursue legal transition by changing their name and gender identity markers in institutional records.<sup>27</sup> Experiences regarding gender affirmation care significantly vary specifically among those who have completed the transition process, those undergoing it, and those who intend to do it, and hence, it requires adequate healthcare resources. While gender affirmation care is completely missing in many resource-poor and conservative settings, transgender people may experience challenges in utilising it due to discrimination in healthcare settings, a shortage of endocrinologists, a lack of adequate health insurance and financial constraints.<sup>26 28 29</sup>

Researchers suggest that improving transgender people's access to healthcare can improve their health outcomes.<sup>30</sup> Information and communication technologies (ICT) including computers, mobile phones and the internet can potentially be useful in addressing some of the challenges faced by low/middle-income and developed countries in providing accessible, cost-effective and

high-quality healthcare services. Telemedicine draws on these technologies to overcome geographical barriers and increase access to healthcare services, notably among disadvantaged and stigmatised populations.<sup>31</sup> Indeed, because the COVID-19 pandemic restricted physical interactions to reduce the spread of the virus, the use of ICT has been very useful in continuing to deliver healthcare.<sup>32</sup>

There has also been strong interest in the use of telemedicine to overcome social and spatial barriers to deliver adequate healthcare to transgender populations, largely in resource-privileged countries.<sup>32</sup> Telemedicine services that include the use of videoconferencing have been a useful tool for providing postoperative care to individuals who undergo gender affirmative surgeries,<sup>33</sup> particularly in situations where access is impeded, such as during the COVID-19 pandemic.<sup>34</sup> Additionally, telemedicine has helped to overcome the stigma barrier when it comes to HIV/STI screening/care among transgender populations.<sup>35 36</sup>

However, while some surveys have shown an increased acceptance of healthcare delivery through telemedicine among transgender populations, an analysis of its outreach, delivery methods, effectiveness and challenges is lacking.<sup>37 38</sup> A recent systematic review has suggested digital health interventions are important for young sexual minority people (aged 12–25).<sup>39</sup> Nevertheless, the complexity and compatibility of delivering healthcare services to transgender people across the lifespan through ICT remain underexplored. This makes a review of the current use of telemedicine in transgender care interesting and timely.

## Objectives

In our scoping review, we aim to synthesise the existing evidence for the use of telemedicine in healthcare delivery among transgender populations. Through our analysis, we endeavour to identify, within the context of transgender health, the effective methods, potential gaps and areas of improvement needed in telemedicine methods. We hope this review will help researchers, practitioners, policy-makers and other stakeholders who are involved in transgender healthcare to advance ICT-related service delivery, thus contributing to a more equitable, accessible and effective provision of health services for such marginalised groups in the digital era.

## METHODS AND ANALYSIS

The development of this protocol was guided by the frameworks developed by Arksey & O'Malley,<sup>39</sup> and the PRISMA-ScR checklist.<sup>40</sup> As we are exploring an area by looking at emerging evidence and are not testing a hypothesis (for which a systematic review, which requires a stronger evidence base, would be more suitable), we decided to adopt a scoping review approach that considers relevant literature from diverse study modalities. Such an approach allows us to achieve a broader and clearer understanding of the various concepts, definitions,

intervention types and knowledge gaps relating to the use of digital technologies in the provision and receipt of transgender health services. We hope that our efforts will help summarise and amplify knowledge on the types of work done under this topic, thereby informing hypothesis generation, empirical research, policy-making, clinical practice and health promotion work.

English-language literature that describes services and interventions that directly target transgender people worldwide will be included in the scoping review. Literature unrelated to the development or evaluation of digitally mediated healthcare services (such as studies using ICT only as a means of participant recruitment and data collection), and those that describe services and interventions that do not directly target transgender people (eg, articles discussing skills development for healthcare workers) will be excluded. The search will be conducted by using three major online databases, namely PubMed, CINAHL and Scopus, with additional literature explored using Google Scholar. Relevant studies will be shortlisted after the completion of a title and abstract review based on defined inclusion criteria. Following that, a final list of included studies will be compiled after a full-text review of the shortlisted articles has been completed.

The rest of this review will be structured according to Arksey & O'Malley's scoping study framework,<sup>39</sup> which supports analytical and process rigour. The framework comprises five steps: (1) identifying the research question, (2) identifying relevant studies, (3) study selection, (4) charting the data and (5) collating, summarising and reporting the results.

### Step 1: identifying the research questions

As we seek to understand how digital platforms have been used in transgender health and the factors that facilitate and obstruct delivering and receiving care through such platforms, our research question is: What does the extant research say about the delivery and receipt of transgender health services through digital means? Based on what we might find, this research question might be refined throughout the scoping review, or additional research questions might be added.

Our operational definition of 'delivery of telehealth service for transgender people', a modification of Scalvini *et al*'s definition of telemedicine, is as follows:

The digitally-mediated delivery of health services and interventions by clinicians and other health professionals to identify, mitigate and deter illness and overall lack of wellbeing, with the aim of improving the health of transgender individuals by increasing access to timely and appropriate healthcare.

In our review, we will use the American Psychological Association's definition of 'transgender',<sup>1</sup> as 'an umbrella term for persons whose gender identity, gender expression or behaviour does not conform to that typically associated with the sex to which they were assigned at birth'.<sup>1</sup>

### Step 2: identify relevant studies

In line with the purpose of scoping studies to be as comprehensive and broad as practicable, our comprehensive search strategy, developed through consensus among team members with the support of an experienced librarian, begins with a literature scan of peer-reviewed publications, research methods and disciplines. The literature must be related to transgender and gender diverse people, and include any form of digital technology used, such as video and telephone consultations, short messaging service reminders, social media and mobile applications. Due to time and cost considerations, we will not include material other than English even though relevant materials might be published in other languages. Works published until January 2022 will be included.

The search queries were first developed for PubMed using medical subject headings (MeSH), and then extended to two scientific databases: CINAHL and Scopus. An additional search will be conducted using Google Scholar. We will first run an individual search using a broad list of terms across three components developed based on MeSH/CINAHL subject headings: telemedicine (eg, m-health, e-health, digital health, telehealth), transgender persons (eg, transgender, gender diverse, transman, transfeminine, gender non-binary) and delivery of healthcare (eg, health service delivery, health promotion, consultation and access to care). We will then combine these search terms to narrow our search to literature containing these three components and compare the results from the consolidation of terms to each of the initial three lists, to determine if the consolidated list captures relevant articles. We will then recalibrate the search protocol based on the initial search results. A list of search terms using PubMed is provided in [table 1](#).

### Stage 3: study selection

Once it has been determined that the consolidated list captures suitable literature, a selection of articles will be presented to all team members for feedback as to whether they should be included in the review, to ensure consistency and to develop the screening frame further.

The initial inclusion criteria will be international literature on how digital technologies have been used in transgender health. With additional literature exploration using Google, Google Scholar and citation mining, a range of published and grey literature, including peer-reviewed publications commentaries, book chapters, reports, conference proceedings, and theses will be considered. Articles published up to January 2022 will be included, with the details of potentially relevant literature published after this date included in an appendix. At every stage, eligibility criteria will be discussed and reached through consensus among all members of the team.

AC, CT, HW and IA will then independently screen abstracts and shortlist pieces of literature that are directly relevant to the research question for inclusion into the scoping review. Each article will be reviewed by

**Table 1** Search terms in PubMed

Search	Query
Telemedicine	“Telemedicine”[Mesh] OR “Mobile application”[tw] OR “mobile app”[tw] OR “mobile apps”[tw] OR “mobile technolog”[tw] OR “information communication technolog”[tw] OR ICT OR “mobile health”[tw] OR mHealth OR Telehealth(tw) OR eHealth[tw] OR Telemedicine[tw] OR “smartphone”[tw] OR “digital health”[tw] OR ecare[tw] OR mcare[tw] OR telecare[tw] OR “Cellular phone”[tw] OR “digital technolog”[tw] OR “telecommunication”[tw] OR “information technolog”[tw]
Delivery of healthcare	“Delivery of Health Care”[Mesh] OR “Delivery of Health Care, Integrated”[Mesh] OR “Health Education”[Mesh] OR “health education”[tw] OR “health promotion”[tw] OR “delivery of healthcare”[tw] OR “consultation”[tw] OR “Health care”[tw] OR healthcare[tw] OR “health service”[tw] OR “health provision” OR “Delivery of Health services”[tw] OR “delivery of healthcare” OR “Health Services Accessibility”[Mesh] OR “Health Services Accessibility” OR “menstrual suppression” OR “speech therapy” OR “hair removal” OR “gender-affirming medical care”
Transgender persons	“Transgender Persons”[Mesh] OR “Health Services for Transgender Persons”[Mesh] OR “Sexual and Gender Minorities”[Mesh] OR “Gender diverse”[tw] OR “non-binary”[tw] OR “transgender”[tw] OR “sexual minorit”[tw] OR “gender minorit”[tw] OR “transman”[tw] OR “transwoman”[tw] OR Transmasculine [tw] OR Transfeminine[tw] OR genderqueer[tw] OR “gender fluid”[tw] OR “Gender non-conforming” OR “Cross sexual”[tw] OR “transsexual”[tw] OR “Gender Equity”[mesh] OR “gender equity”[tw] OR “Gender Affirmation Procedure”[tw] OR “Gender identity”[mesh] OR “gender identity”[tw] OR “Gender Specific Care”[tw]

two members independently. An Excel spreadsheet will be used to finalise the list of articles for inclusion, with the spreadsheet noting publication information (type of publication, authors, publication year, title, journal, volume and issue, page numbers, URL and keywords) and abstracts. As we found from an initial scan that some articles conflate populations (eg, conflating the experiences of transgender people with that of men who have sex with men), we will include a column that asks if each study focuses solely on gender diverse people or more broadly includes sexuality and gender diversity. Nonetheless, these articles targeting transgender people with other lesbian, gay, bisexual, transgender, intersex and queer (LGBTIQ)/sexual minority populations will be included in the review to identify specific recommendations on proving ICT interventions to transgender people.

Full-text screening will be conducted by two members independently to determine if they are relevant for inclusion. Articles whose relevance is unclear will be independently read in full by HTHW with the final determination being made through discussion and consensus. A flow chart of the study identification and selection process is shown in figure 1.

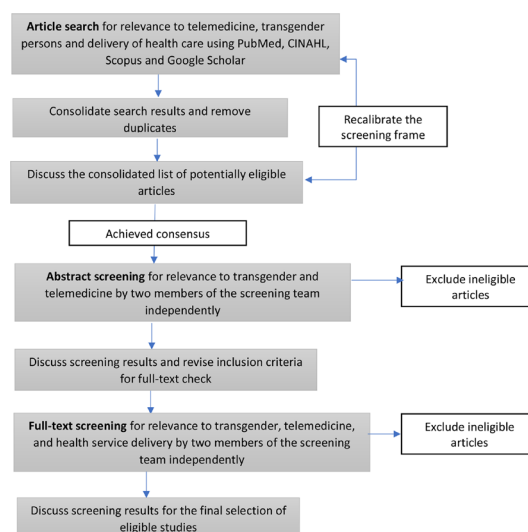
#### Step 4: charting the data

Following step 3, key points of information will be extracted from the reviewed material and then sorted. All members of the team will be tasked with reading a set of five articles and analysing them according to an analytical frame on an Excel spreadsheet that includes study information and outcomes. The data extraction plan will consist of publication information (authors, article type, country and year of publication), types of ICT intervention used, target audience, total number of participants, total number of transgender participants, enablers and challenges described, specific recommendations to transgender people, limitations of study methodology and key

takeaways of the study. Nonetheless, as data extraction and conceptual refinement is an iterative process, it is expected that categories would evolve during the process and over several discussions. After all doubts and inconsistencies are resolved through discussion and consensus, each member of the analysis team will be assigned to assess different sets of publications from the final list.

#### Stage 5: collating, summarising and reporting the results

The framework for collating, summarising and reporting the results will be developed following the discussions at stage 4. As we are examining literature from diverse sources and disciplines, we expect to encounter a range of concepts and methodologies. We will note areas of focus in the literature, document significant gaps, and note the range of interventions used, paying attention to the benefits and disadvantages of various interventions, and any geographical differences in the use of such interventions.

**Figure 1** Flow chart of study identification and selection.

As not much is currently known about this topic, it may be difficult to make comparisons across intervention types or geographical regions, but we will endeavour to do so if appropriate.

## ETHICS AND DISSEMINATION

The research is exempt from ethics approval since our analysis is based on publicly available research into the use of digital technologies in providing healthcare to transgender people. To the best of our knowledge, our scoping review is the first study on the use of ICT to deliver healthcare services that are specifically for transgender people of different ages. From its broad evaluation of what is known and not known, it may guide the design of further studies and interventions at the intersection of transgender health and digital technology. Results from the review will be disseminated through an open-access peer-reviewed publication targeting a public health audience, and through academic and practitioner conferences in medicine, public health and the social sciences.

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## REFERENCES

- American Psychological Association. Answers to your questions about transgender people, gender identity, and gender expression. Available: <https://www.apa.org/topics/lgbtq/transgender.pdf> [Accessed 20 Jan 2022].
- Broad KL. GLB+ T?: Gender/sexuality movements and transgender collective identity (de) constructions. *Int J Sex Gen Stud* 2002;7:241–64.
- White Hughto JM, Reisner SL, Pachankis JE. Transgender stigma and health: a critical review of stigma determinants, mechanisms, and interventions. *Soc Sci Med* 2015;147:222–31.
- King WM, Hughto JMW, Operario D. Transgender stigma: a critical scoping review of definitions, domains, and measures used in empirical research. *Soc Sci Med* 2020;250:112867.
- Magno L, Silva LAVda, Veras MA, et al. Stigma and discrimination related to gender identity and vulnerability to HIV/AIDS among transgender women: a systematic review. *Cad Saude Publica* 2019;35:e00112718.
- Klein A, Golub SA. Family rejection as a predictor of suicide attempts and substance misuse among transgender and gender nonconforming adults. *LGBT Health* 2016;3:193–9.
- McFadden C. Hiring discrimination against transgender job applicants – considerations when designing a study. *Int J Manpow* 2020;41:731–52.
- Seelman KL. Transgender individuals' access to college housing and bathrooms: findings from the national transgender discrimination survey. *J Gay Lesbian Soc Serv* 2014;26:186–206.
- Noor MN. *Homeless youth of Pakistan: survival sex and HIV risk*. Springer briefs in public health. Springer, Cham, 2021.
- Pariseau EM, Chevalier L, Long KA, et al. The relationship between family acceptance-rejection and transgender youth psychosocial functioning. *Clin Pract Pediatr Psychol* 2019;7:267–77.
- Yadegarfar M, Meinhold-Bergmann ME, Ho R. Family rejection, social isolation, and loneliness as predictors of negative health outcomes (depression, suicidal ideation, and sexual risk behavior) among Thai male-to-female transgender adolescents. *J LGBT Youth* 2014;11:347–63.
- Alessi EJ. A framework for incorporating minority stress theory into treatment with sexual minority clients. *J Gay Lesbian Ment Health* 2014;18:47–66.
- Velez BL, Moradi B, Brewster ME. Testing the tenets of minority stress theory in workplace contexts. *J Couns Psychol* 2013;60:532–42.
- Tebbe EA, Moradi B. Suicide risk in trans populations: an application of minority stress theory. *J Couns Psychol* 2016;63:520–33.
- Hayes JA, Chun-Kennedy C, Edens A, et al. Do double minority students face double jeopardy? testing minority stress theory. *J Coll Couns* 2011;14:117–26.
- Kattari SK, Begun S. On the margins of marginalized: transgender homelessness and survival sex. *Affilia* 2017;32:92–103.
- Logie CH, Wang Y, Lacombe-Duncan A, et al. Factors associated with sex work involvement among transgender women in Jamaica: a cross-sectional study. *J Int AIDS Soc* 2017;20:21422.
- Nuttbrock L. *Transgender sex work and society*. New York, NY: Harrington Park Press, 2018.
- Joint United Nations Programme on HIV/AIDS. *The gap report*. Geneva: UNAIDS, 2014. [https://www.unaids.org/sites/default/files/media\\_asset/08\\_Transgenderpeople.pdf](https://www.unaids.org/sites/default/files/media_asset/08_Transgenderpeople.pdf)
- Budhwani H, Hearld KR, Milner AN, et al. Transgender women's drug use in the Dominican Republic. *Transgend Health* 2017;2:188–94.
- Hoffman BR. The interaction of drug use, sex work, and HIV among transgender women. *Subst Use Misuse* 2014;49:1049–53.
- Scheim AI, Bauer GR, Shokoohi M. Drug use among transgender people in Ontario, Canada: disparities and associations with social exclusion. *Addict Behav* 2017;72:151–8.
- Jennings Mayo-Wilson L, Benotsch EG, Grigsby SR, et al. Combined effects of gender affirmation and economic hardship on vulnerability to HIV: a qualitative analysis among U.S. adult transgender women. *BMC Public Health* 2020;20:1–7.
- Kimberly LL, Folkers KM, Friesen P, et al. Ethical issues in gender-affirming care for youth. *Pediatrics* 2018;142:e20181537.
- Pandya Akumar, Redcay A. Access to health services: barriers faced by the transgender population in India. *J Gay Lesbian Ment Health* 2021;25:132–54.



- 26 King WM, Gamarel KE. A scoping review examining social and legal gender affirmation and health among transgender populations. *Transgend Health* 2021;6:5–22.
- 27 Korpaisarn S, Safer JD. Gaps in transgender medical education among healthcare providers: a major barrier to care for transgender persons. *Rev Endocr Metab Disord* 2018;19:271–5.
- 28 Learmonth C, Vilorio R, Lambert C. Barriers to insurance coverage for transgender patients. *Am J Obstet Gynecol MFM* 2018;219:272. e271–272. e274..
- 29 Sequeira GM, Kidd KM, Coulter RWS, et al. Transgender youths' perspectives on telehealth for delivery of Gender-Affirming care. *J Adolesc Health* 2021;68:1207–10.
- 30 Creedon TB, Schrader KE, O'Brien PL, et al. Rural-nonrural differences in telemedicine use for mental and substance use disorders among Medicaid beneficiaries. *Psychiatr Serv* 2020;71:756–64.
- 31 Hamnvik O-PR, Agarwal S, AhnAllen CG, et al. Telemedicine and inequities in health care access: the example of transgender health. *Transgend Health* 2022;7:113–6.
- 32 Gava G, Fisher AD, Alvisi S, et al. Mental health and endocrine telemedicine consultations in transgender subjects during the COVID-19 outbreak in Italy: a cross-sectional web-based survey. *J Sex Med* 2021;18:900–7.
- 33 Schechter LS, D'Arpa S, Cohen MN, et al. Gender confirmation surgery: guiding principles. *J Sex Med* 2017;14:852–6.
- 34 Skeen SJ, Cain D, Gamarel KE, et al. mHealth for transgender and gender-expansive youth: harnessing gender-affirmative cross-disciplinary innovations to advance HIV prevention and care interventions. *Mhealth* 2021;7:37.
- 35 Stephenson R, Metheny N, Sharma A, et al. Providing home-based HIV testing and counseling for transgender youth (project Moxie): protocol for a pilot randomized controlled trial. *JMIR Res Protoc* 2017;6:e237.
- 36 Ng H, Zimmerman L, Ferguson B, et al. Delivering holistic transgender and nonbinary care in the age of telemedicine and COVID-19: reflections and implications for best practices. *Prim Care* 2021;48:213–26.
- 37 Sequeira GM, Kidd KM, Rankine J. Gender-diverse youth's experiences and satisfaction with telemedicine for gender-affirming care during the COVID-19 Pandemic. *Transgender Health*.
- 38 Gilbey D, Morgan H, Lin A, et al. Effectiveness, acceptability, and feasibility of digital health interventions for LGBTIQ+ young people: systematic review. *J Med Internet Res* 2020;22:e20158.
- 39 Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol* 2005;8:19–32.
- 40 Scalvini S, Vitacca M, Paletta L, et al. Telemedicine: a new frontier for effective healthcare services. *Monaldi Arch Chest Dis* 2004;61:226–33.