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IM-POINT OF VIEW

Improving primary care in Europe beyond COVID-19: from telemedicine to organizational reforms

Livio Garattini[1] · Marco Badinella Martini[1] · Pier Mannuccio Mannucci[2]

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Abstract
The COVID-19 pandemic has put under pressure all the health national systems in Europe and telemedicine (TM) has been an almost unavoidable answer for primary care (PC) services to constrain the contagion. PC includes all the healthcare services that are the first level of contact for individuals. General practitioners (GPs) are the pivotal providers of PC throughout Europe. Although GP costs are mainly covered by public services or social insurances in Europe, they are still self-employed physicians everywhere, differently from their colleagues in hospitals who are traditionally employees. TM is a very general term open to various interpretations and definitions. TM can now be practiced by means of modern audio-visual devices and is an alternative to the traditional face-to-face consultation in general practice. Although the adoption of TM seems to be compelling in our era, its practical dissemination in PC has been quite slow so far, and many different concerns have been raised on it. On the whole, TM widespread adoption in PC seems to be more a matter of labor organization and health care funding than of technology and ethics. Larger-scale organizations comprising a wide range of health professionals have become a pressing priority for a modern PC, because working together is crucial to provide high-quality care to patients, and co-location should boost teamwork and facilitate the management of information technology. A national network of large organizations in PC could be rationally managed through local budgets and should increase efficiency by adopting tools such as TM.

Keywords Primary care · Telemedicine · European Union

Introduction

The COVID-19 pandemic has put under pressure all the national health systems in Europe. Telemedicine (TM) has been an almost unavoidable answer for primary care (PC) services to constrain the contagion by means of physical distances between patients and physicians, particularly during the first period of this catastrophic event. The pandemic has dramatically undermined the traditional face-to-face patient-physician relationship, especially in general practice, and brought TM to the forefront of PC on a broad scale as never before [1].

With this background, first we briefly summarize the main features of PC in Europe. Then we give an insight of the vast literature on TM and discuss the major concerns that limited until now its widespread adoption. Finally, we depict a radically different post COVID-19 scenario for PC in Europe, in which TM should be exploited at its best.

Background of primary care in Europe

PC includes all the healthcare services that are the first level of contact for individuals, and then a source of continuous, comprehensive and coordinated regular care to meet their health needs [2]. From a health policy perspective, the major function of PC is its coordination within the whole services dealing with the spectrum of healthcare [3], which range widely from a European country to another depending on national wealth and type of health care system [4].

Regardless of the different healthcare frameworks, general practitioners (GPs) are the pivotal providers of PC

✉ Livio Garattini
livio.garattini@marionegri.it

[1] Institute for Pharmacological Research Mario Negri IRCCS, Ranica, BG, Italy

[2] IRCCS "Ca' Granda Maggiore Policlinico" Hospital Foundation, Milan, Italy

throughout Europe, being the front-line professionals for patients to address any kind of health-related concerns. Furthermore, GPs are considered crucial 'gate-keepers' to filter secondary and tertiary care provided by specialist consultants. This is their traditional role in the Beveridge-type public health systems like the British and Italian NHSs–with universal coverage, mainly funding from general taxation, and mainly public provision–but more recently also in Bismarck-type health insurance systems like the Belgian and Dutch ones–with almost universal coverage, funding from mandatory social contributions, and public–private mix of provision [5]. Although GPs' costs are mainly covered by public services or social insurances in all European nations, they are still self-employed physicians everywhere. For historical reasons, GPs are a sort of 'small-scale businessmen' in the health care systems, at variance with their colleagues in hospitals who are traditionally employees within their workplace.

Finally, a current cogent issue is that out-of-hours and timely access to PC have become a common concern in this era of ageing populations [4, 6], further amplified by the increasing GPs' shortage throughout Europe. In addition to practice nurses, a recent strategy in the frame of PC has been to involve pharmacists, by far the third largest group of health professionals in Europe [4]. Pharmacists might help to reduce the GP workload by improving drug appropriateness and patient adherence to prescriptions, especially for those on poly-pharmacy with multiple diseases.

State of art of telemedicine

TM is a very general term open to various interpretations, starting from its multiple definitions [7].

Overall, TM may include the storage, retrieval and transmission of personal data and information on patients' health meant to support clinical decision making by and between health professionals [8]. Nevertheless we still find valid and cogent the very first TM definitions that, without including the information flow, were more strictly patient-oriented [9]. These definitions refer to TM as a virtual interactive communication tool between physicians and remotely located patients, thus implying that TM can be an alternative to the traditional face-to-face consultation. Following a pioneer approach based upon telephone exchanges at the end of the last century, synchronous TM can now be practiced by means of modern and hi-tech audio-visual devices (e.g., smartphones and tablets). Nowadays, the potential interest on TM in high-income countries goes far beyond the possibility to periodically consult patients living in remote areas [10], and can be extended at least to patients unable to travel on account of disability problems, financial restraints or work commitments [11]. A current and evident example is the avoidance of physical contacts between patients and physicians prompted by the COVID-19 pandemic. Fortunately, the technology barriers which potentially limited more widespread TM usage in the past have been gradually overcome, thanks to the drastic cost reduction of audio-visual devices [9].

Several studies have shown that TM is at least as good as traditional consultations in terms of efficacy and quality of life, especially for frequent and rare chronic diseases that require periodic check-ups and visits to hospitals [12, 13]. The most paradigmatic example is diabetes, probably not by chance the very first illness to which the concept of patient empowerment was applied [14], owing to the crucial importance of lifestyle and thus the major role played by patients to manage their own health. Not surprisingly, TM also resulted to be cost-effective from both health and societal perspectives [12, 13], thanks to lower direct (clinical) and indirect (travel and work loss) costs.

Major concerns on telemedicine

Although the widespread adoption of TM seems to be compelling in our era dominated by information technology (IT), its practical diffusion has been hindered so far, especially in the frame of PC. Despite the extensive evidence that TM interventions in PC are feasible and acceptable to both patients and physicians [3], TM has been the target of numerous concerns during the last decades.

The early concern regarding the low knowledge of IT tools among health professionals and patients has now been substantially reduced in practice, even among elderly patients [11]. Moreover, this cannot be considered an insurmountable hurdle in PC, once it is accepted that TM is complementary to traditional care rather than its full replacement [15]. Following the establishment of a solid and empathic patient-physician relationship, patient-centered care allows the former to freely discuss with the latter whether or not a technical choice like TM fits in specific circumstances [14]. TM should not be a one-size-fits all solution, but must be always user- and case-sensitive [16]. The personalization of decisions is even more important in the frame of PC, a level of care inevitably characterized by a highly heterogeneous population. Also, a personalized and tailored approach implicitly addresses the concern that TM could cause inequality of access by penalizing those patients who are less IT educated and/or financially affluent [17]. Once recognized that patients can have access to PC health professionals in the way that suit them best, TM must be considered a new form of available communication added to the traditional ways.

Various ethical and legal concerns have been often raised on TM with reference to patient confidentiality and privacy

[15]. These concerns mainly stem from security issues related to the repository of electronic medical records [16], and are usually ascribed to the current lack of specific legislation on TM [9]. In general, confidentiality and privacy protection are major issues in the era of IT [18], so that a specific definition of sensitive health related data is hardly meaningful [15]. Yet patients are usually much less concerned than healthy citizens about privacy, expecting that the TM benefits of rapid communication with clinicians outweigh the risks [18]. Privacy concerns have been even extended to TM consultations, because confidential information might be overheard by relatives or friends present during the TM sessions [11]. However, a warning or reminder to the patient/caregiver at the very beginning of the session should be enough to cope with them.

Finally, a major economic concern on TM stems from its financial impact on traditional healthcare services, especially in those systems widely adopting tariff lists if and when TM fees fail to compensate for the loss of income due to missed paid consultations and visits [8]. In addition to hospitals, this can become a real hurdle for TM also in PC, notably in countries where many GPs still work single-handed (e.g., France, Italy and Spain) and might lose a relevant proportion of their own personal income.

On the whole, TM widespread adoption in PC seems to be more a matter of labor organization and health care funding than of technology and ethics. That is why today the real priority for European health systems is to truly implement comprehensive strategies aimed at boosting TM [10], rather than conducting further research projects on it.

Policy implications

In general, the demand of PC services can vary greatly even within the same country due to the different catchment area. Overall, the two main determinants of PC access in Europe are population age (e.g., the proportion of children and elderly people) and territory features (e.g., sparsely populated or urban areas).

Nowadays, the social category mostly affected by a piecemeal delivery of PC services in the modern European societies are working people, who, besides being themselves potential patients, are often caregivers for their own children and even more frequently for their elderly relatives [4]. Since this may imply several hours away from home or work, especially in rural areas, workers would substantially benefit from a wider usage of TM in PC.

From the standpoint of the supply side, we are convinced that larger-scale organizations comprising a wide range of health professionals have become a pressing priority for a modern PC. Working together is crucial to provide high-quality care to patients, and co-location should facilitate communication and boost teamwork [4]. A rational strategy could, therefore, be to merge all the existing sites providing different health and administrative services at local level into single 'PC centers' open for at least 12 h per week day. These facilities would bring together all the health and non health professionals working in PC, including GPs, who might become full-time employees like their colleagues in hospitals. Beside better filtering minor ailments away from hospital emergency rooms and minimizing internal administrative overlaps, these organizations would carry several advantages. First, facilitated access to PC services, especially for workers, thanks to a wide range of opening hours. Second, increased provision of home care for elderly patients who really need it, due to the large staff available. Third, enhanced management of out-of-hours for continuing PC, thanks to huge consolidation. Last but not least, PC centers should be able to better exploit IT tools in the long run. Besides facilitating the management of electronic medical records in PC, these large organizations should help develop clinical scribing [19], i.e., the team-based management of patient clinical documentation, a very useful support for health professionals regularly practicing TM. The development of IT skills within a PC team should help clinicians to recoup time with patients and limit their burnout [19].

To match demand and supply of health care, we question whether tariffs (i.e., fixed prices per service) are the right choice. Since competition cannot work by definition in a 'market failure' context like health [20], setting fee-for-service tariffs is necessarily an arbitrary exercise, which eventually leads to financial distortions and irrational allocation of resources. Moreover, 'artificial competition' among health care services undermines their coordination and synergies, which is indeed a paradoxical outcome, especially in PC.

Rather than pricing and competing according to economic theory, we believe that planning and budgeting according to business administration principles is the appropriate culture to be borrowed for managing health care organizations [20]. A national network of large organizations in the frame of PC could be rationally managed through local budgets fixed on a per capita basis and weighed according to age and density of population, with systematic monitoring of costs (inputs) and health service performances (outputs) facilitated by modern digital reporting systems.

In conclusion, we strongly believe that this proposal to improve the organization of future PC in Europe, based on positive lessons drawn from the COVID-19 pandemic, is feasible and should in due course increase efficiency through the widespread adoption of useful and flexible tools such as TM.

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Compliance with ethical standards

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Statement of human and animal rights This article does not contain any studies with human participants or animals performed by any of the authors.

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References

1. Ananthakrishnan AN, Singh S (2020) The doctor will call you now! Telemedicine in the midst of a pandemic. Clin Gastroenterol Hepatol 18(8):1688–1690
2. Garattini L, Curto A, Freemantle N (2016) Access to primary care in Italy: time for a shake-up? Eur J Health Econ 17(2):113–116
3. Bashshur RL, Howell JD, Krupinski EA, Harms KM, Bashshur N, Doarn CR (2016) The empirical foundations of telemedicine interventions in primary care. Telemed J E Health 22(5):342–375
4. Garattini L, Padula A (2018a) English and Italian national health services: time for more patient-centered primary care? Eur J Intern Med 57:19–21
5. Smits M, Colliers A, Jansen T, Remmen R, Bartholomeeusen S, Verheij R (2019) Examining differences in out-of-hours primary care use in Belgium and the Netherlands: a cross-sectional study. Eur J Public Health 29(6):1018–1024
6. Steeman L, Uijen M, Plat E, Huibers L, Smits M, Giesen P (2020) Out-of-hours primary care in 26 European countries: an overview of organizational models. Fam Pract. https://doi.org/10.1093/fampra/cmaa064
7. Sood S, Mbarika V, Jugoo S, Dookhy R, Doarn CR, Prakash N, Merrell RC (2007) What is telemedicine? A collection of 104 peer-reviewed perspectives and theoretical underpinnings. Telemed J E Health 13(5):573–590
8. Allaert FA, Legrand L, Abdoul Carime N, Quantin C (2020) Will applications on smartphones allow a generalization of telemedicine? BMC Med Inform Decis Mak 20(1):30
9. Nittari G, Khuman R, Baldoni S, Pallotta G, Battineni G, Sirignano A, Amenta F, Ricci G (2020) Telemedicine practice: review of the current ethical and legal challenges. Telemed J E Health. https://doi.org/10.1089/tmj.2019.0158
10. Alami H, Gagnon MP, Wootton R, Fortin JP, Zanaboni P (2017) Exploring factors associated with the uneven utilization of telemedicine in Norway: a mixed methods study. BMC Med Inform Decis Mak 17(1):180
11. Krishna MT, Knibb RC, Huissoon AP (2016) Is there a role for telemedicine in adult allergy services? Clin Exp Allergy 46(5):668–677
12. Rodríguez-Fortúnez P, Franch-Nadal J, Fornos-Pérez JA, Martínez-Martínez F, de Paz HD, Orera-Peña ML (2019) Cross-sectional study about the use of telemedicine for type 2 diabetes mellitus management in Spain: patient's perspective. The EnREDa2 Study. BMJ Open 9(6):e028467
13. Avidor D, Loewenstein A, Waisbourd M, Nutman A (2020) Cost-effectiveness of diabetic retinopathy screening programs using telemedicine: a systematic review. Cost Eff Resour Alloc 18:16
14. Garattini L, Padula A (2018b) Patient empowerment in Europe: is no further research needed? Eur J Health Econ 19(5):637–640
15. Lucivero F, Jongsma KR (2018) A mobile revolution for healthcare? Setting the agenda for bioethics. J Med Ethics 44(10):685–689
16. Mehta SJ (2014) Telemedicine's potential ethical pitfalls. Virtual Mentor 16(12):1014–1017
17. Hanna L, May C, Fairhurst K (2012) The placeof information and communication technology-mediated consultations in primary care: GPs' perspectives. Fam Pract 29:361–366
18. Hall JL, McGraw D (2014) For telehealth to succeed, privacy and security risks must be identified and addressed. Health Aff (Millwood) 33(2):216–221
19. Yan C, Rose S, Rothberg M, Mercer MB, Goodman K, Misra-Hebert AD (2018) Patient perspectives on clinical scribes in primary care. J Gen Intern Med 33(11):1859–1861
20. Garattini L, Padula A (2019) Competition in health markets: is something rotten? J R Soc Med 112(1):6–10