EDITORIAL

The COVID-19 Pandemic and Telemedicine

The COVID-19 pandemic has affected our lives in many and different ways. One of the few positive benefits has been the rapid uptake of telemedicine facilitated by the relaxation of regulatory constraints and broadening of remuneration regimes. In many countries healthcare professionals, administrators, insurers, and governments have looked to telemedicine to reduce the associated risks of face to face consultation to both patients and doctors and the risk of infection in doctors' waiting rooms and hospital outpatient departments and clinics. At the same time providing care and continuity of care to the patient, and income to the healthcare professional.

It is always useful to recall lessons from the past. Aronson's excellent review of reports in the Lancet on the use of the telephone between its patenting in 1876 and 1975 noted the use of the telephone to allow communication without the need for face-to-face interaction between the patients and caregivers in a hospital in London during an outbreak of scarlet fever in 1887: "Rightly used, it may even prove a boon of some considerable curative influence." and "… the risk of infection is materially lessened."[1]

The increase in telemedicine use is staggering. In the US the number of telemedicine consultations for Medicare beneficiaries increased from 840,000 in 2019 to 52.7 million in 2020.[2] In Europe approximately 72% of people in Spain had had an online or telephonic telemedicine consultation by March 2021 as had more than 40% of people in 17 other countries.[3] By March 2022, Australia reported over 100 million telemedicine encounters by 65% of the population.[4] In the developing world it is difficult to find aggregated data, but in India, a government service eSanjeevani recorded 170,000 consultations in a single day in March 2022.[5]

The telemedicine responses have been rapid and varied. Healthcare professionals who were not pre-pandemic telemedicine users have had to establish telemedicine services and find ways of making them work effectively and efficiently. For many this has required ingenuity and the need for recommended models for developing successful and sustainable telemedicine services, such as the Momentum 18 Critical Success Factors, to be adapted or steps bypassed.[6] What previously could take a year or more of developing plans - business, financial, implementation, change management, training and monitoring - was suddenly achievable in a few weeks.[7] There is a lot to learn from the different approaches taken.

Many promising early reports of telemedicine use in response to the pandemic lacked adequately sized samples and follow-up periods. Reports of patient and provider satisfaction were often biased by necessity and a sense of achievement rather than long-term reflection on the overall outcome of the process. The pandemic has provided a large experimental test bed for telemedicine research. Future research on how telemedicine was implemented, the factors affecting its subsequent sustainability, scalability, and long-term user and funder satisfaction may transform our understanding and approach to digital health planning and implementation, and may possibly alter our approach to traditional step by step development.[8] Another aspect of telemedicine during the pandemic that needs further investigation is the role of patient generated electronic health data and the associated issues of data validity, its storage and incorporation in medical records, be they electronic or paper-based, and legal and regulatory concerns.[9]

The pandemic forced many people to become home-based videoconferencers. The high costs of establishing video-conference-based telemedicine services have fallen as everyday solutions like ZOOM, Skype, Teams, WeChat etc., have been incorporated in clinical practice. Smartphones offer the option of video and audio calls using participants' own devices and connectivity. Text messaging, with or without associated images, video and voice messages have transformed store and forward telemedicine, converting it into a near real-time experience in some services. The reduced costs and the use of ubiquitous free applications is already having, and will continue to have, a significant effect on healthcare delivery in the developing world. Terminology has also changed. Many people previously reported 'hybrid' telemedicine as a mix of synchronous and asynchronous modalities. The current COVID literature now describes 'hybrid' as a mix of telemedicine and face to face consultation. Time will tell which definition prevails.

With all of these changes, where do we currently perceive telemedicine to be in terms of Rogers' Diffusion of Technology and the Gartner Hype Cycle? Has telemedicine as a general concept now reached the Rogers' stage of the early majority and is it already moving into the late majority? On the Hype Cycle, has telemedicine moved out of the Trough of Disillusionment, is it still ascending the Slope of Enlightenment, or has it reached the early stages of the Plateau of Productivity? Is the uptake and acceptance of

telemedicine still heavily discipline specific, suitable for some aspects of healthcare delivery, but not others? The reader will have to determine where the literature, and their telemedicine experiences and activities, lie on these two descriptors of telemedicine use and uptake.

Will those who adopted telemedicine, either willingly or reluctantly continue to use telemedicine modalities as the pandemic recedes? Will the regulators and funders stifle the sustainability and further growth of telemedicine? Or is there enough 'mass' of users, both healthcare professionals and patients to lobby for its continued use and growth? The situation will no doubt vary within and between countries with their different health systems, regulations and funding formulae.

There is much work to be done in analysing what has worked and what has not been as successful as expected, what can be sustained and what can be scaled. Exciting times and opportunities for significant ongoing research. We look forward to publishing some of this work in the future.

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