

USE OF TECHNOLOGY IN THE MODERN HEALTHCARE WORKPLACE

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Introduction

In today's world, digital technologies have facilitated communication among healthcare providers and patients. Healthcare workers and residents of care homes can now stay in touch with smartphones, emails, text messages, etc. Technology has made healthcare more accessible and more accurate. Adopting electronic health records (EHR) has revolutionized the healthcare sector. Nonetheless, modern technologies are being used in care homes for smoothening the treatment of older patients in terms of better diagnosis, care, and accessibility. This paper has attempted to examine emerging technologies' role in care homes to ensure better treatment and care for elderly patients.

Necessity of Finding Relevant factors of the Impact of Technology on Healthcare Sector

Healthcare technology advancements have benefited many people and are constantly improving their living standards. Moreover, nearly all processes and techniques used by healthcare professionals have been dramatically altered by technological advances in healthcare. The availability of information required by patients and doctors is among the primary perks technologies have to provide in the healthcare sector. With the development of EHRs, hospitals and doctors are no more dependent solely on the necessity to preserve patient physical records (Kumar and Singh, 2018). Digital storage makes it easy to retain all the information, sparing hospitals cash and physical space. Within medical institutions, communication is becoming much easier owing to technological advancements.

Even though some physical storage is still needed, the bulk is currently digital, which is very convenient for physicians (He et al., 2020). The same could be stated of healthcare technology. The healthcare revolution has increased all for medical staff and patients, from enhanced operational excellence to improvements in patient care. Medical professionals may now keep relevant on advances in healthcare practices, techniques, and technology owing to this innovation. By matching patient information with thousands of others, it is possible to proactively determine risk factors, recommend the most appropriate preventive treatment, lower costs, and enhance life quality. Researchers need to investigate this domain extensively because of the considerable prominence and prospects of technological advancement in the healthcare industry (Al-Marouf et al., 2020). Tremendous technological advancement is being used in almost all of the healthcare industry. However, the use of emerging technologies can evolve care homes as well. Hence, it is of the utmost importance to look into this prospect.

Selection of the Research Topic

Our daily lives have become more shaped by technology. Nonetheless, the aged are the group who most require its potentially stimulating impacts. Technology's influence in this industry has grown in the past few years, and many care homes have accepted it, allowing citizens and employees to profit from its perks (Giebel et al., 2021). Care facilities throughout the nation ought to quit being hesitant to adopt new technologies and start adopting them in order to enjoy the advantages that come with them. They are the one group that has skipped this innovative transit. Some people may be worried that their elderly parents in care homes will become isolated and lonely. If not very active, the relative may rely on family trips for interaction with others outside the care facility's boundaries. The cooperating care homes lowered hospitalizations by 35% (Giovanelli et al., 2021). Moreover, 53% fewer residents from such homes were referred to A&E, and 59% less of the sampled population's days were served in hospital beds altogether (Lember et al., 2019). More fundamentally, educating patients on how to utilize mail or social networks can be a fantastic method of keeping them linked to the external environment. Healthcare at home was a privilege that only a select few could pay. But now, because of the growth and accessibility of technology, we live in the digital healthcare age. Technologies have been the primary force behind workplace, household, and healthcare development. Global home healthcare market was previously valued at nearly USD 281.8 billion in 2019 (Gardner et al., 2019). According to studies, the elderly population is forecasted to rise to 88.5 million by 2050, representing 20% of the nation's people, considerably raising the requirement for elderly healthcare. From 2020 to 2027, the care home healthcare technological solutions industry is anticipated to expand at an annual compounded growth rate (CAGR) of 7.9% (Verma, 2020).

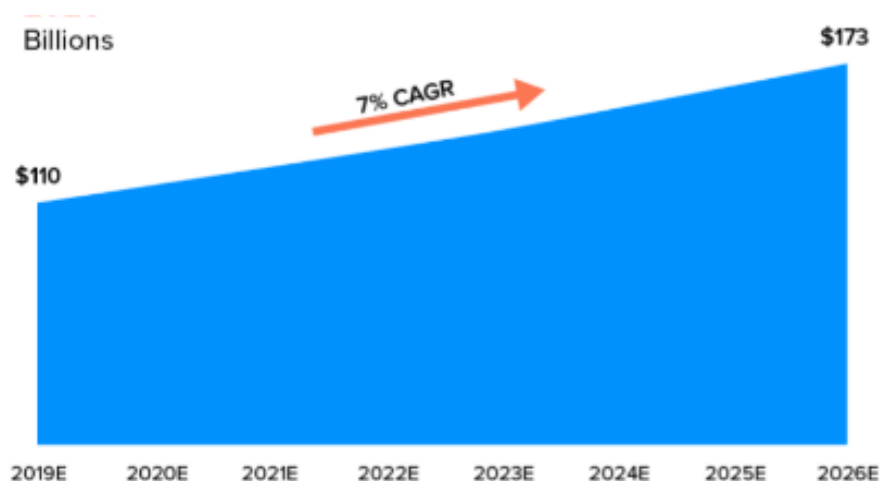


Figure 1: Rise in UK Home Healthcare Spending

(Source: Bone et al., 2018)

Since older people do not usually have their own choice of staying at home alone, care homes are rising dramatically throughout the UK. The progress in terms of technology can be profitable for the healthcare industry. Hence, this paper has selected this research topic surrounding care homes.

The Use of the Impact of the Modern Technology on Care Homes

With the assistance of home care technology, anyone can get long- or short-term expert medical treatment in the convenience of their own home. Inventions in home care not only offer services to the elderly or improve senior care, but also for people who have a variety of circumstances, including those who have special needs or an impairment, people who are getting older and require help to remain independent, people who are recovering from a healthcare roadblock, those who have chronic diseases, and so on (Ouslander and Grabowski, 2020). Lately, there has been a rise in new tools and gadgets designed expressly for care home personnel to support patients. Some technologies can assist make care homes more profitable and compassionate, even though some may be more intriguing to reporters seeking a good narrative than healthcare professionals and owners. Technology is altering how people provide and seek medical attention. The benefits might be enormous for service users, their families, caretakers, and providers (Pal et al., 2018). Nevertheless, technological advancements must never come at the cost of delivering superior, person-centred treatment. The possible benefits technology can have in enhancing the wellbeing and health of the elderly people in care homes is tremendous.

Traditional Technologies Used by Care Homes in the Past

Naturally, home care technologies offer a more affordable option to other care options like nursing homes, assisted living, and in-home patient safety, allowing numerous people to provide their family members with the life-saving medical treatment they require. Home care solutions can often play the role of conventional healthcare. As individuals of all ages cannot contact healthcare providers in a traditional, in-person environment, telemedicine has increased in value over the past year (De Spiegeleer et al., 2020). Telemedicine technology enables the distant communication of information, usually through digital mediums, between doctors and patients to deal with these previously recognized issues like wait times and expensive healthcare costs. Patients save time, money, and inconvenience by arranging consultations over the telephone, via video call, or through an app.

Modern technologies used by Care Homes

Moreover, people are mindful that health problems rarely follow a present schedule. Patients commonly require help after hours, successfully handled by continuous monitoring technologies, including wearables and smart home healthcare devices (Čaić et al., 2018).

There have been improvements in accident and motion sensors, medicine management devices, wearables to track insulin, smart stockings to monitor skin temperature, air quality monitors, smart vests to aid breathing, and heart rate sensors to notify first responders of issues. In the field of care robotics, we see how AI-powered robot technology is continually developing to effectively perform tasks and provide assistance to healthcare providers while learning from and modifying based on the patient's conduct. Surgical robots offer Substantial functionality, which also helps manage medications, answer patients' medical questions, and link them with the appropriate healthcare providers whenever needed (Moreno et al., 2020). Healthcare technology powered by AI offers excellent potential for early diagnosis; smart systems can support decision-making and help identify acute diseases in individuals that might otherwise go undetected. The market for robotic healthcare systems was estimated to be worth 8.307 billion in 2020, and it is projected to increase at a CAGR of 22.18% from 2021 to 2026 to reach Nearly 28.34 billion (Verma, 2020). Although consumer perceptions of medical robots have traditionally been largely negative, a meaningful change has occurred in the last several years. People are aware that such devices can minimize the times they need to see the ER or their regular care physician, saving them time and money while still offering enhanced care. This is one of their main selling points.

Benefits of Modern Technologies on Care Home Staff

Modern technological advancements have steadily increased healthcare accuracy and speed, helping providers effectively deliver better care and devote more time to their clients. Examples involve point-of-care testing tools, remote patient monitoring, and AI. Many care facilities already encourage events and fitness programs to keep patients in shape and healthy (Courtenay and Perera, 2020). Technology may provide both an exciting and active activity and a possibility for social exercise. Spending less time at a computer and more time with patients can be accomplished by investing in equipment that can substitute the massive amounts of documentation that caregivers sometimes have to cope with.

Benefits of Modern Technologies on the Residents

Caregivers can't be all at once, despite the outstanding job they perform to guarantee inhabitants' well-being and health. Across several significant ways, technology can help narrow these observational disparities. The security of residents can be monitored in each room utilizing environmental monitoring technology (Wu, 2020). This technology is quite sophisticated and smart and can be configured to send notifications. Its use includes remembering specific residents to take their medications if they self-administer them, warning staff if someone trips, or, in a situation where residents self-cater, alerting a resident to turn off their oven if they have left on (Giebel et al., 2021). Speech recognition technologies could

be used to interact with other electrical equipment to perform tasks, like opening the windows or switching lights, for less ambulatory residents.

Risks Associated with Modern Technologies

Since healthcare systems frequently deal with personal and delicate patient data, security is a significant concern. Regarding cryptographic security, the healthcare sector has extremely stringent guidelines that define when and how to encode, transport, and decode data. Applications used in telemedicine that are legal must follow strict data protection standards and encryption algorithms (Abdi et al., 2018). A telehealth service's core third-party platform also must adopt security by implementing stringent data security, password protection, and contingency planning policies and practices. Regarding patient documentation rights and how suppliers share the information, a variety of privacy rules and regulations govern. Such regulatory measures inevitably limit data mobility making it more difficult for care homes to implement technological advances that use data. The rules need to be more consistent, which contributes to their intricacy (Schieweck et al., 2018). The laws regulating privacy and data protection vary significantly between countries. For example, the European Union has specific laws and regulations governing care homes. The "safe harbour" system has established criteria to ensure the secure transmission of medical and private information between the USA and the E.U.

Methodology used in this research report

This paper has conducted secondary research to delve into the use of technology in modern healthcare workplaces, especially care homes. Qualitative data has been collected from various sources like books, articles, journals, and newspaper reports. Collecting secondary data is relatively easy and fast compared to primary data. Moreover, it enables the investigators to go straight to the analysis process (Cr, 2020). There is also a wide range of sources available in secondary research for analyzing the data. Hence, the researcher has no limitation in obtaining information from the authorities. Also, the research papers are already published, which helps the researcher gather information.

Recommendations and Conclusions

Hence, it is clearly observable how care homes are being revolutionized using modern technologies. The healthcare managers need to invest more amount on the technologies for replacing their paperwork in order to provide better care to the residents. Moreover, there is a prominent gap in knowledge and awareness regarding the use of technologies in residential care context which need to be addressed immediately for helping the care home management to accept technological evolution. The mutual interests of local government, inhabitants, and

care providers should encourage local governments to play a significant role in creating innovative technology for the residential care sector. This might also give the local authorities a chance to subsidize new services and products by making them accessible to care homes that would otherwise not be able to pay the up-front, transitory costs of acquisition and installation to reap the long-term benefits. In addition, vendors can assist by providing rental bundles instead of capital acquisitions.

References

- Abdi, J., Al-Hindawi, A., Ng, T. and Vizcaychipi, M.P., (2018). Scoping review on the use of socially assistive robot technology in elderly care. *BMJ open*, 8(2), p.e018815. <http://dx.doi.org/10.1136/bmjopen-2017-018815>
- Al-Marroof, R.S., Salloum, S.A., Hassanien, A.E. and Shaalan, K., (2020). Fear from COVID-19 and technology adoption: the impact of Google Meet during Coronavirus pandemic. *Interactive Learning Environments*, pp.1-16. <https://doi.org/10.1080/10494820.2020.1830121>
- Bone, A.E., Gomes, B., Etkind, S.N., Verne, J., Murtagh, F.E., Evans, C.J. and Higginson, I.J., (2018). What is the impact of population ageing on the future provision of end-of-life care? Population-based projections of place of death. *Palliative medicine*, 32(2), pp.329-336. <https://doi.org/10.1177/026921631773443>
- Čaić, M., Odekerken-Schröder, G. and Mahr, D., (2018). Service robots: value co-creation and co-destruction in elderly care networks. *Journal of Service Management*. <https://doi.org/10.1108/JOSM-07-2017-0179>
- Courtenay, K. and Perera, B., (2020). COVID-19 and people with intellectual disability: impacts of a pandemic. *Irish Journal of Psychological Medicine*, 37(3), pp.231-236. <https://doi.org/10.1017/ipm.2020.45>
- Cr, K., (2020). Research methodology methods and techniques. <http://14.99.188.242:8080/jspui/bitstream/123456789/12457/1/Research%20Methodology%20-%20Methods%20and%20Techniques%202004.pdf>
- De Spiegeleer, A., Bronselaer, A., Teo, J.T., Byttebier, G., De Tré, G., Belmans, L., Dobson, R., Wynendaele, E., Van De Wiele, C., Vandaele, F. and Van Dijck, D., (2020). The effects of ARBs, ACEis, and statins on clinical outcomes of COVID-19 infection among nursing home residents. *Journal of the American Medical Directors Association*, 21(7), pp.909-914. <https://doi.org/10.1016/j.jamda.2020.06.018>
- Gardner, R.L., Cooper, E., Haskell, J., Harris, D.A., Poplau, S., Kroth, P.J. and Linzer, M., (2019). Physician stress and burnout: the impact of health information technology. *Journal of the American Medical Informatics Association*, 26(2), pp.106-114. <https://doi.org/10.1093/jamia/ocy145>
- Giebel, C., Cannon, J., Hanna, K., Butchard, S., Eley, R., Gaughan, A., Komuravelli, A., Shenton, J., Callaghan, S., Tetlow, H. and Limbert, S., (2021). Impact of COVID-19 related social support service closures on people with dementia and unpaid carers: a qualitative

study. *Aging & mental health*, 25(7), pp.1281-1288.
<https://doi.org/10.1080/13607863.2020.1822292>

Giovanelli, A., Adams, S.H., Park, M.J. and Ozer, E.M., (2021). Delivering Anticipatory Guidance About Technology Use to Adolescents in Primary Care: Rates in a Representative California Sample. *Journal of Adolescent Health*, 69(6), pp.1044-1047.
<https://doi.org/10.1016/j.jadohealth.2021.06.007>

He, P., Sun, Y., Zhang, Y. and Li, T., (2020). COVID–19's impact on stock prices across different sectors—An event study based on the Chinese stock market. *Emerging Markets Finance and Trade*, 56(10), pp.2198-2212. <https://doi.org/10.1080/1540496X.2020.1785865>

Kumar, S. and Singh, M., (2018). Big data analytics for healthcare industry: impact, applications, and tools. *Big data mining and analytics*, 2(1), pp.48-57.
<https://ieeexplore.ieee.org/abstract/document/8486794>

Lember, V., Brandsen, T. and Tõnurist, P., (2019). The potential impacts of digital technologies on co-production and co-creation. *Public Management Review*, 21(11), pp.1665-1686.
<https://doi.org/10.1080/14719037.2019.1619807>

Moreno, C., Wykes, T., Galderisi, S., Nordentoft, M., Crossley, N., Jones, N., Cannon, M., Correll, C.U., Byrne, L., Carr, S. and Chen, E.Y., (2020). How mental health care should change as a consequence of the COVID-19 pandemic. *The Lancet Psychiatry*, 7(9), pp.813-824. [https://doi.org/10.1016/S2215-0366\(20\)30307-2](https://doi.org/10.1016/S2215-0366(20)30307-2)

Ouslander, J.G. and Grabowski, D.C., (2020). COVID-19 in nursing homes: calming the perfect storm. *Journal of the American Geriatrics Society*, 68(10), pp.2153-2162.
<https://doi.org/10.1111/jgs.16784>

Pal, D., Funilkul, S., Charoenkitkarn, N. and Kanthamanon, P., (2018). Internet-of-things and smart homes for elderly healthcare: An end user perspective. *IEEE Access*, 6, pp.10483-10496. <https://ieeexplore.ieee.org/abstract/document/8300511>

Schieweck, A., Uhde, E., Salthammer, T., Salthammer, L.C., Morawska, L., Mazaheri, M. and Kumar, P., (2018). Smart homes and the control of indoor air quality. *Renewable and Sustainable Energy Reviews*, 94, pp.705-718. <https://doi.org/10.1016/j.rser.2018.05.057>

Verma, S., (2020). Early impact of CMS expansion of Medicare telehealth during COVID-19. *Health Affairs Forefront*. 10.1377/forefront.20200715.454789

Wu, B., (2020). Social isolation and loneliness among older adults in the context of COVID-19: a global challenge. *Global health research and policy*, 5(1), pp.1-3.
<https://doi.org/10.1186/s41256-020-00154-3>