Title: Public Health Technologies to Revolutionize Health Care Delivery.

Mansing D, Bisure.

Faculty of Law, Vidya Protistans Vasantrao Pawar Law College, Baramati. SPPU,Pune.

Abstract:

Advances in innovation are changing the way health care administrations are conveyed, from wearable gadgets that give prior analyse and suggest personalized medications, to telehealth innovations that interface patients and public health's experts in a virtual space. Within the domain of public health's, innovation bolsters the ways in which experts can accumulate and analyse data and give made strides care to communities. Public health's professionals have endless openings to make and utilize energetic open wellbeing innovation arrangements that can have a significant effect on patient care.

Public health's essential objectives centre on securing and progressing the wellbeing of communities. Public health's innovation makes a difference reach these objectives with more prominent productivity. When connected to public health's circumstances, tech gives public health's experts with progressed instruments to get precise, point by point populace information in genuine time. This information can help them construct more compelling significant wellbeing techniques covering a run of scenarios, from person care techniques to planning back frameworks that can address broad malady flare-ups.

Innovation envelops everything from life-saving gadgets to data-gathering apparatuses, meaning that the collaboration between innovation and public health is multifaceted. Whereas the taking after cases illustrate this interaction in unfathomably distinctive ways, they are all joined together by the objective of moving forward community wellbeing.

Key Words: **Technology, Health, Innovations, Wellbeing, Professionals.**

Bio of Author:

Mansing D. Bisure has possessed Qualification B.Sc. (Chem) From Shivaji University, Kolhapur. M.Sc. (Org.Chem) From Fergusson College, PUNE. LL.B.(Spl) From Shivaji University, Kolhapur. LL.M. (Constitutional & Administrative Law) Department of Law SPPU, PUNE. SET-Maharashtra, UGC-NET.

Pursuing Ph.D. From Maharashtra National Law University, Mumbai.

He has immense Knowledge in Research. He Presented & Published more than 10 Research Paper's on various Sociolegal as well Purely Legal issues Like Intellectual Property Rights, Ramayana: An instrument for Indianizing Socio-Legal Approaches, World Constitution, Environment, Consumer Rights etc. in ISBN & ISSN Books & Journals respectively at Various National & International Conference.

Since 2019 He is working as a Asst. Prof. in Vidya Protistans Vasantrao Pawar Law College Baramati Affiliated to SPPU, PUNE. As Academician He has also Serving Responsibility & Contribution as Students Welfare Officer & Training Placement of officer of Institute.

Introduction:

Technological advances are changing the way healthcare services are delivered, from wearable devices that provide earlier diagnosis and personalized treatment recommendations to telehealth technology connecting patients and healthcare professionals in a virtual space.

In the public domain in healthcare, technology is making it easier for professionals to collect and analyse information and provide better care to the community. Public health professionals have many opportunities to create and utilize dynamic public health technology solutions that can have a profound impact on patient care.

The main goal of public health focuses on protecting and improving the health of the community. Public health technology helps achieve these goals with greater efficiency. When applied to public health situations, this technology provides public health professionals with advanced tools to obtain accurate and detailed demographic data in real time. This data can help them develop more effective and feasible medical strategies in a variety of situations, from individual care strategies to coordinating support systems capable of dealing with outbreaks. widespread outbreak.

The results of healthcare delivery technology:

Healthcare delivery technology is a broad set of applications, processes, and resources that collect information to enable care delivery. The literature shows that these technologies can reduce medication errors, hospitalization rates, length of stay, and mortality, while also improving patient compliance with treatment plans. According to a meta-analysis of the

effectiveness of electronic patient education, adoption of this technology has resulted in a significant reduction in prescribing errors and adverse events in hospitals. One study, even retrospective, has shown that remote monitoring systems are effective in improving active disease prevention in extremely vulnerable patients and thus avoiding readmitted to the hospital or to the emergency room. Additionally, a review of the literature on the nature and magnitude of remote monitoring outcomes suggests a positive impact of remote monitoring on clinical outcomes (e.g., reduced emergency room visits, hospitalization, and average length of stay). In some studies, these techniques have been shown to be more practical for people undergoing treatment and therefore more effective in improving treatment compliance and thereby reducing disease risk, other long-term complications. For example, another systematic review conducted to evaluate the impact of telemedicine interventions on medication adherence found that telemedicine may improve medication adherence. treatment in patients with depression, bipolar disorder and/or schizophrenia. Ramsey et al. and colleagues systematically reviewed published studies of digital interventions, such as electronic monitoring systems, web-based communication with health care workers, and news Text message reminder. In addition to being effective in improving medication adherence, these technologies have also been shown to improve health outcomes.

Improve healthcare productivity:

There is global consensus that the use of digital technology in healthcare is at least a decade behind many other sectors. Compared to other sectors, it may not be able to realize the improvements in productivity and value that technology brings. The healthcare sector has seen a decline in productivity despite huge spending on technology. Additionally, health care costs continue to rise faster than GDP, affecting the budgets of federal, state, and municipal governments, employers, and individuals. Economic models show that if health care productivity could increase by 4%, we would solve the health care cost problem. To meet the growing demand for healthcare services, it is important to improve healthcare productivity using healthcare delivery technology. So, the opportunity lies not only in improving health outcomes but also in improving the productivity of healthcare workers. In other words, productivity is a key aspect of any economy's ability to produce more at less cost (or at least at the same cost). Increased health service productivity will allow medical advances to continue to meet growing demand for services.

Although there are no specific performance metrics, technology can improve healthcare efficiency and therefore care productivity in a variety of ways. For example, tele dermatology was developed to provide dermatology services (clinical and laboratory) to people living far from specialists in remote areas. Instead of seeing each patient in person, dermatologists can reach more patients through images and medical records stored and shared by referring physicians on a secure server. Studies have shown that the number of annual consultations increased by almost 68% after the adoption of aggressive telemedicine programs (Armstrong AW, Wu J, Kovarik CL, et al. State of tele dermatology programs in the United States. J Am Acad Dermatol. 2012;67(5):939-944. doi: 10.1016/j.jaad.2012.02.019) In another example, the relationship between electronic communication and patient/physician workload was explored in an in-depth analysis. Research shows that Kaiser Permanente (KP) Health Connect™ Online is associated with reduced rates of primary care visits (Zhou YY, Garrido T, Chin HL, Wiesenthal AM, Liang LL. Patient access to an electronic health record with secure messaging: Impact on primary care utilization. Am J Manag Care. 2007;13(7):418-24.). The rate of medical examinations decreased by 10.3%, equivalent to 0.25 visits/member/year ($p < 0.001$) compared to the period before the system was deployed.

Implementing these options will mean fewer patients going into waiting rooms and less pressure on emergency services; These savings will free up physicians to consider complex situations and focus on clinical outcomes and patient satisfaction (Danzon P, Furukawa M. e-Health: effects of the Internet on competition and productivity in health care. The economic payoff from the internet revolution. 2001:1-3). Additionally, implementing these solutions could also address the expected nationwide shortage of healthcare professionals (Nikhil S, Pooja K, Edward L, Shubham S. The Productivity Imperative for Healthcare Delivery in the United States. https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/the-productivity-imperative-for-healthcare-delivery-in-the-united-states. accessed 18 June 2020.).

Economic advantage:

While the use of technology in health service delivery can improve health outcomes and health care productivity, it is more likely to reduce health care costs, especially in the long run. A new U.S. report finds travel and wait times for healthcare are higher than in any other sector, contributing to lost opportunities and costing providers $89 billion. Long wait times facilitate the use of innovative services, such as telemedicine, on-site health services and clinics provided

by employers, to meet the needs of employers. customer needs, especially the needs of the elderly, and provide a greater source of comfort ("Time to Travel and Wait in Health Care: The Opportunity for Self-Care at Home." Health Populi.com. N.p.,26 Feb. 2019. https://www.healthpopuli.com/2019/02/26/time-to-travel-and-wait-in-health-care-the opportunity-for-self-care-at-home/. accessed 18 June 2020.). In fact, another study reported cost savings in a virtual health system and described time savings for primary care physicians as more than $7 billion per year ("2018 Consumer Survey on Digital Health." Accenture. N.p., n.d. https://www.accenture.com/us-en/insight-new-2018-consumer-survey-digital-health. accessed 18 June 2020. accessed 18 June 2020).

Electronic communication between patients and doctors has helped significantly reduce overall insurance costs. In a new report, healthcare costs were reduced by $3.69 per member per month when patients and providers communicated electronically (First Consulting Group. Advanced technologies to lower health care costs and improve quality. Massachusetts Technology Park Corporation; 2003:5). Additionally, interactive video conferencing has been studied by O'Reilly et al. The researcher compared clinical outcomes and costs between telepsychiatry and in-person psychiatric encounters with 495 patients from the Thunder Bay region of Canada, an area with insufficient numbers of psychiatrists. God. Results showed that the cost of telepsychiatry was 10% lower than the cost of personal care per patient (16% lower per visit) (O'Reilly R, Bishop J, Maddox K, Hutchinson L, Fisman M, Takhar J. Is telepsychiatry equivalent to face-to-face psychiatry? Results from a randomized controlled equivalence trial. Psychiatric Serv. 2007;58(6):836-43. doi: 10.1176/ps.2007.58.6.836.). Finally, in a pilot trial of home heart failure (HF) remote monitoring (MR), patients hospitalized with HF at Massachusetts General Hospital were randomized to a control group (n = 68). or into the MR-recommended group (n = 82). The results showed that MR of HF patients saved more than 10 million USD in six years (Kulshreshtha A, Kvedar JC, Goyal A, et al. Use of Remote Monitoring to Improve Outcomes in Patients with Heart Failure: A Pilot Trial. International Journal of Telemedicine and Applications. 2010; 2010:870959. doi: 10.1155/2010/870959.). The cost-effectiveness of using technology in healthcare delivery has also been analysed in several studies using a healthcare perspective. In 2014, Elbert and colleagues determined the cost-effectiveness of digital health in their systematic reviews and meta-analyses of digital health approaches. death for somatic diseases. In 2018, Sanyal et al examined data reported from 2010 to 2016 as part of another comprehensive study on the economic evaluation of e-health technology. The researchers noted that most of the randomized control and predictive

analytics methods that met the inclusion criteria demonstrated the cost-effectiveness of using electronic health technology. Additionally, chronic disease patients using home monitoring systems showed better health outcomes and overall healthcare cost savings.

Analysis:

We recognize that changing demographic trends, aging and the increasing incidence of chronic diseases create enormous demand for health services. Health technology in particular offers new opportunities to improve healthcare delivery, from prevention and health improvement to curative treatment and automated management. As such, they can reshape health services to contribute meaningfully to health system goals.

Although this technology significantly improves outcomes in clinical situations, it may not be effective in many situations. The outcomes and consequences of these technologies will depend especially on the quality of services and the groups involved, especially professionals and caregivers, companies that produce health services and public agencies. The scope and effects of these technologies will vary significantly from case to case, highlighting the difficulty in assessing their effects. A thorough understanding of the two key interrelated variables, "health services" and "digital", as well as a thorough review of the entire development, production, financing, implementation, and evaluation, are necessary for the development of If designed in a targeted and cost-effective way, the innovative technologies that some health services can deliver will deliver health outcomes. better health and contribute to the sustainability of the health system. Therefore, these technologies must be carefully evaluated and monitored during their introduction, deployment, use, and financing. The reality is that new technologies in the health sector, like other technologies, often have a positive impact on certain strategic goals as well as on certain groups while having a negative impact. extreme to other groups. Certain considerations must be considered when implementing and evaluating the technology. First, the real challenge is reimbursing or financing a health service from the savings of the public health system. While this is simple in countries with comprehensive healthcare systems, it causes problems for millions of underserved patients worldwide. This could then be a starting point to make it easier for the uninsured to sign on and make it easier for the government to pay these patients' bills. Several other countries have recently moved in this direction and others may follow. Being flexible enough to simplify telemedicine billing rules, such as whether a physician can diagnose, treat, manage, and be reimbursed, can be helpful. While some countries such as the United States and Germany are moving to simplify these regulations, many others

are restricting the use of telemedicine. Second, it is important to consider equity in deploying these technologies in the context of the preferences or abilities of different groups of people. Some problems may also arise from differences in technology use and understanding across age groups. We recognize that while digitalization can lead to disparities in usage between different age groups, companies can more directly tailor technology to the needs of these groups. different ages. Therefore, it should also be used by vulnerable communities, including poor populations without access to health services or individuals who do not have enough knowledge about health care.

Conclusion:

The burden of chronic disease is increasing steadily every year, and costs are also increasing significantly. Using technology to deliver healthcare will help alleviate some of the costs associated with poor health by providing interventions that can help patients manage chronic conditions or improve them health, thereby reducing morbidity and mortality. In today's healthcare system, patients must receive any form of treatment or support at a medical facility. Applying technology to care delivery means that care is delivered to the patient, not the patient receiving the care. We believe that reimbursement and equity are two key issues that need to be addressed before deploying these technologies to achieve significant benefits in health outcomes, productivity, and cost savings.

References:

Almiki ZS, Simsim DA. The Role of Health Technology in Transforming Healthcare Delivery and Enhancing Spending Efficiency Glob J Med Therap. 2020;2(3):11-15. https://doi.org/10.46982/gjmt.2020.107

Baker LC, Johnson SJ, Macaulay D, Birnbaum H. Integrated telehealth and care management program for Medicare beneficiaries with chronic disease linked to savings. Health Aff (Millwood). 2011;30(9):1689-1697. doi:10.1377/hlthaff.2011.0216 38.

Ricciardi W, Pita Barros P, Bourek A, Brouwer W, Kelsey T, Lehtonen L. How to govern the digital transformation of health services. European journal of public health. 2019;29(Supplement_3):7-12.

Ibrahim N, Altwoijri A, Alabdulkarim H, Alnajjar F, AlSaqa'aby M. Challenges in Applying Pharmacoeconomics at Hospital Level: Expert Based Approach. Glob J Med Therap. 2019;1(1):1-4. https://doi.org/10.46982/gjmt.2019.103.

Pita-Barros P, Bourek A, Brouwer W, Lehtonen L. Assessing the impact of digital transformation of health services. Report of the EXPH (Expert Panel on effective ways of investing in Health).

Alsaqa'aby MF, Ibrahim N. An Overview About Rare Diseases in Saudi Arabia and Reimbursement of Orphan Drugs. Glob J Med Therap. 2019;1(2):8-13. https://doi.org/10.46982/gjmt.2019.105.

Nuckols TK, Smith-Spangler C, Morton SC, et al. The effectiveness of computerized order entry at reducing preventable adverse drug events and medication errors in hospital settings: A systematic review and meta-analysis. Systematic reviews. 2014;3(1):56.

Orozco-Beltran D, Sánchez-Molla M, Sanchez JJ, Mira JJ, ValCrònic Research Group. Telemedicine in primary care for patients with chronic conditions: The ValCrònic Quasi-Experimental Study. Journal of medical Internet research. 2017;19(12):e400. doi:10.2196/jmir.7677

Paré G, Jaana M, Sicotte C. Systematic review of home telemonitoring for chronic diseases: The evidence base. Journal of the American Medical Informatics Association. 2007;14(3):269-77. doi: 10.1197/jamia.M2270

Basit SA, Mathews N, Kunik ME. Telemedicine interventions for medication adherence in mental illness: A systematic review. General hospital psychiatry. 2020;62:28-36. doi: 10.1016/j.genhosppsych.2019.11.004.

Ramsey RR, Plevinsky JM, Kollin SR, Gibler RC, Guilbert TW, Hommel KA. Systematic Review of Digital Interventions for Pediatric Asthma Management. J Allergy Clin Immunol Pract. 2020;8(4):1284-1293. doi:10.1016/j.jaip.2019.12.013

Armstrong AW, Wu J, Kovarik CL, et al. State of teledermatology programs in the United States. J Am Acad Dermatol. 2012;67(5):939-944. doi:10.1016/j.jaad.2012.02.019

Zhou YY, Garrido T, Chin HL, Wiesenthal AM, Liang LL. Patient access to an electronic health record with secure messaging: Impact on primary care utilization. Am J Manag Care. 2007;13(7):418-24