What will make the biggest contribution to improving the public's health in the next 10 years?

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'Can you hear me alright?' This is the notorious phrase now uttered at the beginning of most NHS meetings now conducted virtually. Since the pandemic, it is no surprise that the convenience of online meetings has become a mainstay. Similarly, the introduction of digital health tools in the NHS is hailed as a mark of progress in the modern era as it 'aspires to the highest standards of excellence and professionalism'. Therefore, concerns surrounding data protection, existing health disparities and digital literacy must be addressed to ensure the most effective delivery of quality care and ensure a lasting contribution to the public's health.

'Why treat people and send them back to conditions that make them sick?' asks Michael Marmot as he opens *The Health Gap*,[1] capturing the devastating nature of health inequalities – preventable differences in health between different groups of people in the population. In the King Fund's 2020 report, it is recommended that in the NHS and governmental policy, health inequalities are addressed broadly across four factors: socioeconomic status; geographical location; characteristics such as sex, ethnicity or disability; and 'socially excluded groups' such as those experiencing homelessness.[2] These 'social determinants' are a challenge to the progression of the public's health.[1]

Therefore, in a post-COVID world, digital health interventions are deemed effective in bridging previous gaps by providing accessible health information and services. For instance, telemedicine will provide consultations and health advice to poorer families or remote communities who might not be able to afford frequent hospital visits. Long will be the days of the 'language line', with newer technology adapting to a much wider range of cultures and languages than a traditional consultation. Furthermore, virtual wards are allowing the remote monitoring and support of patients outside the traditional hospital setting, ensuring the management of chronic conditions and post-surgical recovery, remotely.[3] Patients enrolled in virtual wards can be equipped with devices and 'wearables' to record key clinical observations and communicate with healthcare teams in real time.

Whilst such interventions give control to the patient, who may previously have been dis-empowered in Marmot's gradient with an over-reliance on an iatrogenic[4] medical institution and promotes independence in a 'preventative' health model, it is known that inaccuracies occur in such cases. For instance, in weekly home blood pressure readings submitted to general practices, errors were more closely associated with levels of education, and a prolonged, more complicated medical history.[5] At a time when about 1 million people have cancelled their broadband package in the last 12 months due to affordability, and 10 million adults lack basic digital skills,[6] it seems that these interventions fit the curve of the social gradient, rather than a deconstruction of the determinants of differential outcomes of health.

However, public health education initiatives positively use digital platforms to reach communities, such as the most recent 'Pharmacy First' campaign for the seven common conditions such as sore throat and acute otitis media. Digital health tools can support early interventions by providing educational resources to parents and carers, facilitating virtual prenatal care and monitoring developmental milestones in children.[6] Such an approach emphasises the significance of early childhood health and development, ultimately providing children with a healthier start in life and breaking the "cycle of health inequalities".

Furthermore, as digitalisation plays a larger role in these children's lives, it is essential public health strategies are implemented to ensure there is an even playing field as children enter early education. Early interventions are essential in influencing future habits regarding digital media use. Delaying device use and encouraging offline socialisation are key strategies in addressing these digital determinants, alongside the introduction of penalties for companies encouraging an overindulgence in media consumption.[7]

Subsequently, digitalisation as a public health strategy must be *introspective*. Automation and mass reach of information will be beneficial in terms of public health messaging; however, such messages will need to be in self-reprove of the very devices and platforms in use. This is clear when there are allusions drawn between social media platforms and tobacco companies in their addictive and commercial design[8] and will be a challenge when striking this balance.

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An introspective approach would also be employed effectively when mitigating the NHS' vulnerabilities in data protection. The most recent hack of Synnovis in June 2024 caused mass disruption of Guy's and St Thomas' NHS Trust's pathology department.[9] Further digitalisation in the NHS holds the potential to revolutionise health record management. The introduction of mobile applications and AI-powered triage will expedite the processing of patients' information; however, the aggregated data is highly valuable to hackers. The same machine learning would also need to be used as automated security to 'outsmart' these malicious movers who try to bypass encryption.[10] This technology will certainly play a large role in the next decade.

In conclusion, digitalisation within healthcare is being welcomed with open arms. This will revolutionise the public's health in the next decade, by allowing care to become more personalised and accessible. This can only be achieved, however, through the tactful implementation of measures around existing health disparities where technology will best work against the current gradient of inequality. With an increasing reliance on automation and algorithms must come an increasing security awareness of the dangers of a more effective 'pooling' of data. Public health campaigns should address the challenges of a more introspective approach to digital media platforms and the adverse effects of technology use. Effective partnerships will need to coordinate these efforts. Overall, an evaluative and ethical digitalisation drive will help to provide the most quality care and improve the public's health.

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