# Ieso Digital Health – Written Evidence (LOL0116)

## 1. EXECUTIVE SUMMARY

1.1 In the UK, 1 in 4 adults will experience at least one diagnosable mental health problem in any one year.[1] Approximately 70-75% of people with a diagnosable mental illness receive no treatment at all.[2]

1.2 The NHS will spend £13bn on mental health in 2020 but NHS England's own research has suggested that demand for adult health services could rise by 40%, largely driven by the experiences of lockdown during the Covid-19 pandemic.[3] Indeed, modelling from the Centre for Mental Health suggests that up to 10 million people will need new or additional mental health support as a direct consequence of Covid-19[4].

1.3 Living more online will of course present both challenges and opportunities for the mental health of our communities. As the Committee evaluates potential negative impacts, it is important that these should be considered in the wider context of the current mental health crisis and the new opportunities afforded by digitalisation to transform the accessibility and quality of mental health support.

1.4 Digitally-enabled models of care can have a positive impact on mental health during and beyond the current health emergency. When coupled with modern data science techniques, these digital approaches are enabling much needed progress in the accessibility and quality of mental health support. Insights derived from digitally-accessed treatment models are helping clinical scientists understand the causes and symptoms of different mental health conditions, how well treatments work, and how each treatment works for individual patients.

1.5 Care delivered in this way also breaks down the existing barriers to access by removing social stigma, travel, time off work, long waiting times, limited availability out of office hours. It can also facilitate access to treatment for those who have not previously engaged in the traditional route of face-to-face therapy appointments.[5]

1.6 Academics suggest that mental health offers the greatest potential for digital transformation of all the fields in healthcare because there is a significant gap between what patients need and what global healthcare systems can deliver.[6]

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[1] Independent Mental Health TaskForce to the NHS in England, The Five Year Forward View for Mental Health, February 2016
[2] King's College London, Socio-economic variations in the mental health treatment gap for people with anxiety, mood and substance disorder: Results from the WHO World Mental Health (WMH) Surveys, Sept 2017
[3] HSJ, Mental health demand could almost double warns NHSE research, 7th December
[4] Centre for Mental Health, Covid-19 and the nation's mental health, October 2020
[5] https://www.england.nhs.uk/wp-content/uploads/2020/05/iapt-manual-v4.pdf
[6] Jonty Roland, Emma Lawrence, Tom Insel and Helen Christensen, November 2020, The Digital Mental Health Revolution; Transforming Care through innovation and scale-up

1.7 We should recognise the risks associated with living online, but we must also embrace the opportunity afforded by digitalisation to increase access, quality, and engagement[7] with mental healthcare services and deliver parity of esteem between physical and mental healthcare across the NHS.

## 2. ABOUT IESO DIGITAL HEALTH

2.1 Ieso Digital Health (Ieso) delivers world-class online mental healthcare, with reach to over 20 million patients and a clinical network of 650+ fully qualified therapists and psychological wellbeing practitioners (NHS and private) across the UK. Ieso provides flexible and confidential 1:1 evidence-based psychotherapy. Treatment is delivered in real-time, anytime, anywhere, through an easily accessible online platform.

2.2 Through the application of advanced clinical and data science methods, Ieso is working to revolutionise our understanding of the causes of mental ill-heath and to develop a new generation of insight-driven care delivery models enabled by technology.

2.3 Ieso has a track record in improving patient care beyond national targets and has already treated more than 70,000 patients through over 400,000 hours of therapy under the NHS IAPT programme. It is currently available across 49 NHS clinical commissioning groups and 27 NHS providers. Ieso's clinical outcomes consistently exceed all national targets for out-patient mental healthcare.[8]

## 3. INTRODUCTION

3.1 Ieso welcomes the opportunity to respond to the Covid-19 Committee's call for evidence into the impact of digitalisation on the four key drivers of wellbeing.

3.2 Ieso has not sought to respond to all the questions raised in the call for evidence but has focused specifically in area of mental health where we are most qualified to contribute our expertise and comment.

3.3 In England, the Improving Access to Psychological Therapies (IAPT) programme is a national programme initially rolled out in 2008. It was developed as a 'systematic way to organise and improve the delivery of, and access to, evidence-based psychological therapies within the NHS.[9]

3.4 IAPT is a world leading programme which has transformed the treatment and care of adults in England who can expect to receive NICE recommended psychological therapy for depression or anxiety disorders.[10]

[7] ibid
[8] NHS Digital: Psychological Therapies: reports on the use of IAPT services, England August 2020 Final including reports on IAPT pilots
[9] The National Collaborating Centre for Mental Health; 'The Improving Access to Psychological Therapies Manual', first published June 2018, updated March 2020
[10] ibid

Indeed, the NHS Mental Health Implementation Plan, published in July 2019 set out how the IAPT programme would be expanded to cover a total of 1.9 million adults and older adults by 2023 / 24.[11]

3.5 One of the ways providers and commissioners are encouraged to improve access to IAPT services is through digitally enabled therapy provided through the internet and with the support of a clinician.[12] Delivering care in this way not only maximises the geographic reach of the IAPT programme, but it also enables treatment to be accessed 'anywhere and at any time.'[13] Furthermore, this route can also facilitate access for people who have not engaged in the traditional route of face-to-face therapy appointments.[14]

3.6 The IAPT manual also suggests that digitally enabled therapy could be considered as part of the overall service design. Patients using this treatment option would work through materials on the internet, with ongoing support from their therapist.[15] This can have a positive impact on waiting times by using an empirically validated digital therapy programme.[16]

3.7 The Mental Health Foundation has also recommended that the NHS should 'accelerate its plans to roll out evidence informed psychotherapeutic digital mental health interventions.'[17]

3.8 More broadly, the Committee should also note the academic paper, '*The Digital Mental Healthcare Revolution,*' which highlights that mental health offers the greatest potential for digital transformation of all the fields in healthcare[18]. This is because there is a significant gap between what patients need and what global healthcare systems can deliver.[19] Whilst this needs to be addressed urgently, the paper suggests it will only be possible through a revolution in access, quality, and engagement.[20]

3.9 Living more online will of course present both challenges and opportunities. As the Committee evaluate the long-term impacts, it is important these should be considered in the wider context of the current mental health crisis.

3.10 Delivery of mental healthcare is still often fragmented from the wider NHS system thereby making it more challenging to deliver 'person centred coordinated care for physical health, mental health and social care needs.'[21]

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[11] NHS Mental Health Implementation Plan 2019/20 – 2023/25, July 2019
[12] The National Collaborating Centre for Mental Health; 'The Improving Access to Psychological Therapies Manual', first published June 2018, updated March 2020
[13] ibid
[14] ibid
[15] ibid
[16] ibid
[17] Mental Health Foundation, Mental health in the Covid-19 pandemic, recommendations for prevention, July 2020
[18] Jonty Roland, Emma Lawrence, Tom Insel and Helen Christensen, November 2020, The Digital Mental Health Revolution; Transforming Care through innovation and scale-up
[19] ibid
[20] ibid
[21] The National Collaborating Centre for Mental Health; 'The Improving Access to Psychological

3.11 Without a radical change in our approach and attitude, to increase access, quality, and engagement, we are unlikely to realise the potential of digitalisation for improving patient outcomes and delivering parity of esteem between physical and mental healthcare and more integrated care in the NHS.

## 4. THE SCALE OF THE CHALLENGE IN MENTAL HEALTHCARE

4.1 Mental illness is already one of the most impactful and burdensome health challenges of the 21st century, yet it remains critically under resourced. In England, mental health is the second largest burden of disease,[22] costing the economy £199 bn per year.[23]

4.2 According to a report by Wellcome, UNICEF, the World Health Organisation and the World Economic Forum, Covid-19 has placed the existing mental health crisis more firmly in the spotlight. Importantly, it highlights that we do not yet have the resources and breadth of effective treatments to deal with the current crisis which also requires more international cooperation.[24]

4.3 Modelling from the Centre for Mental Health suggests that up to 10 million people will need new or additional mental health support as a direct consequence of Covid-19[25] and recommends that the Government and the NHS must act now to prepare for this additional need across all age groups. Furthermore, data from Public Health England shows that psychological distress peaked in April 2020 and whilst there have been some signs of recovery, these are not yet at pre-pandemic levels.[26]

4.4 In the UK, 1 in 4 adults will experience at least one diagnosable mental health problem in any one year.[27] Approximately 70-75% of people with a diagnosable mental illness receive no treatment at all.[28]

4.5 Whilst mental health conditions can often be difficult to speak about making patients unwilling to seek treatment; care can also be very hard to access. In half of countries across the world, there are fewer than 4 mental health workers for every 100,000 people in the population.

Therapies Manual', first published June 2018, updated March 2020
[22] https://www.gov.uk/government/publications/health-profile-for-england-2019
[23] Centre for Mental Health, A spending review for wellbeing, 28th July 2020
[24] Wellcome: Expanding our vision for mental health, September 2020
[25] Centre for Mental Health, Covid-19 and the nation's mental health, October 2020
[26] Public Health England: Covid-19 mental health and wellbeing surveillance report, November 2020
[27] Independent Mental Health TaskForce to the NHS in England, The Five Year Forward View for Mental Health, February 2016
[28] King's College London, Socio-economic variations in the mental health treatment gap for people with anxiety, mood and substance disorder: Results from the WHO World Mental Health (WMH) Surveys, Sept 2017

4.6 Clinical outcomes for mental health have been generally static for several decades[29,30] with an exception being in the UK IAPT programme. Arguably, the most recent major developments in therapeutic development for mental health conditions were in the 1960s with the emergence of Cognitive Behavioural Therapy (CBT) and the 1980s with selective serotonin reuptake inhibitors (SSRIs).[31]

4.7 Whereas life expectancy has risen by c. 30 years, the mortality gap between those with and without depression has increased since 1970. The UK has one of the highest self-harm rates in Europe,[32] whilst globally, there are 8 million deaths annually (almost a million of which are by suicide) of people suffering from mental health disorders.[33]

4.8 The NHS will spend £13bn on mental health in 2020, yet NHS England's own research has suggested that demand for adult health services could rise by 40%, largely driven by the experiences of lockdown. Furthermore, the modelling also suggests that diagnosis of some of these conditions are likely to be delayed as they may initially be mislabelled as 'burnout'.[34]

4.9 More broadly, Covid-19 is expected to have a major long-term impact on mental health globally with the economic impact of mental illness projected to reach $6 trillion by 2030.[35]

## 5   THE IESO VISION – FASTER ACCESS TO INSIGHT-DRIVEN ONLINE MENTAL HEALTHCARE

5.1 By generating collective knowledge from real-world clinical data, Ieso has become a world leader in the development of insight-driven mental healthcare. Ieso's recovery rates for patients receiving internet enabled CBT have consistently surpassed all national targets.[36]

5.2 Ieso's methodology is a vehicle for improving choice, access and quality for patients. We are providing an accountable and high-quality service

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[29] Johnsen, T. J. & Friborg, O. The effects of cognitive behavioural therapy as an anti-depressive treatment is falling: A meta-analysis. *Psychol. Bull.* (2015) doi:10.1037/bul0000015.

[30] Cristea, I. A. *et al.* The effects of cognitive behavioral therapy are not systematically falling: A revision of johnsen and friborg (2015). *Psychol. Bull.* (2017) doi:10.1037/bul0000062

[31] Todd M.Hillhouse and Joseph H. Porter; Exp Clin Psychopharmacol. 2015 Feb; 23(1): 1–21. doi: 10.1037/a0038550; *A brief history of the development of antidepressant drugs: From monoamines to glutamate*

[32] Attempted suicide in Europe: rates, trends and sociodemographic characteristics of suicide attempters during the period 1989–1992. Results of the WHO/EURO Multicentre Study on Parasuicide, Acta Psychiatrica Scandinavica, May 1996

[33] Jonty Roland, Emma Lawrence, Tom Insel and Helen Christensen, November 2020, The Digital Mental Health Revolution; Transforming Care through innovation and scale-up

[34] HSJ, Mental health demand could almost double warns NHSE research, 7th December

[35] Bloom, D.E., Cafiero, E.T., Jané-Llopis, E., et.al. (2011). The Global Economic Burden of Noncommunicable Diseases. Geneva: World Economic Forum

[36] NHS Digital: Psychological Therapies: reports on the use of IAPT services, England August 2020 Final including reports on IAPT pilots

enabling continuous learning to improve treatment, recovery and prevention using our clinical expertise, AI and data science knowledge.

5.3 We do this by using the same data science techniques that have been successful in physical healthcare and other areas of industry. Our vision is to create more efficient, effective, and accessible mental health care for all, particularly when traditional methods are unavailable or limited in effectiveness.

5.4 There is a significant opportunity to drive innovation in mental healthcare and Ieso is demonstrating there is a place for digital technology at the heart of the UK's healthcare system.

## MENTAL HEALTH: ONE OF FOUR KEY DRIVERS OF WELLBEING

### 6 How will any long-term trend towards increased reliance on digital technology affect mental health?

6.1 As highlighted in the NHS Long Term Plan, technology has provided new possibilities for prevention, care, and treatment.[37] Digital technology has enabled patients to have greater control over the care they receive and offered choice and better support to people and how they manage their overall health.[38]

6.2 4 in 5 adults now own a smartphone meaning digital reach is higher than ever before. Consumer trust in big data is driving large scale research through open-source framework's such as Apple's ResearchKit helping researchers gather large amounts of real-world data on health problems. That said, the use of smartphones in health and care still falls short of the potential to create and monitor personal digital biomarkers that combine with new data sources to improve prevention, treatment and help people make sustained behaviour changes.[39]

6.3 During the Covid-19 pandemic, there has been a shift to online delivery of care giving patients access to treatment where traditional methods could no longer be the first port of call.

6.4 Similarly, engagement with digital therapeutics based on CBT have also been on the rise and showing positive results in RCT.[40] This is largely due to improved engagement strategies through personalised responses to patient data.

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[37] The NHS Long Term Plan, January 2019
[38] ibid
[39] Technology in UK healthcare - Megatrends – key drivers; Alex Kune
[40] ibid

6.5 It is therefore important to recognise that digital technology can have a positive impact on mental health. Ieso's model of innovative care not only improves patient access and choice but delivers much improved patient outcomes for people suffering from a range of mental health conditions.

6.6 Technology enabled care such as demonstrated through Ieso's model has enabled more personalised digital therapies at the same time as providing a more affordable alternative treatment choice. Our technology breaks down the existing barriers to access by removing social stigma, travel, time off work, long waiting times, limited availability out of office hours.

6.7 Increasing connectivity and creating a sense of community can also be facilitated by greater use of digital technology, particularly at a time when isolation and loneliness are at peak levels since the lockdown in March. ONS data suggests that 4.2 million people are currently suffering from acute loneliness.[41]

6.8 It should however be acknowledged that increased reliance on digital technology does not come without its challenges and that it can equally have an adverse effect on mental health. For example, problems associated with internet addiction, pathological gambling, or problematic use of smart phones as an ineffective anxiety management tool.

6.9 Although the evidence to date is not conclusive, some people believe that the use of digital technology in the future could lead to a rise in new mental health disorders. Some people already cite apps such as Facebook and WhatsApp as a primary driver in the breakdown of relationships for example. Similarly, the more time that people spend isolated could also drive the number of presentations that have technology at the heart of the problem such as social anxiety and body dysmorphia, alongside other issues related to social media use.

6.10 However, when used by trained healthcare professionals, digital technology provides us with the best opportunity to deal with an escalating mental health crisis and treat more people, more quickly, and earlier in the patient pathway.

**7 Will any increasing reliance on digital technology affect the mental health of different groups – older people, children, people with disabilities, ethnic minorities, home-workers – in different ways?**

7.1 In our view there is little doubt that different groups of society will be impacted differently by an increased reliance on digital technology. The reasons for this are complex and varied.

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[41] https://www.bbc.co.uk/news/education-54973709

7.2 Some studies have highlighted that the influence of the media on the 'psychosocial development on children and adolescents can be profound'[42]. Whilst engaging in social media can benefit children and adolescents; it is important to note at the same time, because they have 'limited capacity for self- regulation'[43] and are 'susceptible to peer pressure' it can also put them more at risk[44]. For example, internet use can be negatively associated with wellbeing, such as appearance / body image, and worse for girls than boys.[45]

7.3 Some studies also suggest that increased internet use amongst children and young people will reduce the time spent on other activities and points to the adverse effect of social media use.[46]

7.4 Older people, however, who in a clinical sense have 'free will' and choice, are more able to exercise control over how they interact with digital technology e.g., when to be digitally available or not, and are more able to identify the addictive qualities. Furthermore, digital platforms also offer untapped opportunities to tackle loneliness, with Age UK suggesting there are 1.4 million chronically lonely older people in England.[47]

7.5 Digital technology can also support better engagement with typically underrepresented groups. These groups include the BAME community, those with long term health conditions, older adults and those requiring perinatal support.

**8 What steps can be taken to mitigate some of the negative consequences of any increasing reliance on digital technology on mental health?**

8.1 Here we have restricted our comments to considerations related to the impact of digitalisation on mental healthcare delivery.

8.2 There are significant legal, ethical and procedural considerations when providing therapy online. Delivering treatment via non-specialist systems such as Zoom video conferencing may create new risks. For example, risks associated data privacy and security and information governance, the absence of quality control and systems for clinical audit and risk escalation.

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[42] Paediatrics & Child Health; Impact of media use on children and youth, May-Jun 2003; 8(5): 301–306

[43] Gwenn Schurgin O'Keeffe, Kathleen Clarke-Pearson and Council on Communications and Media; Pediatrics, Official Journal of the American Academy of Pediatrics, The impact of social media on children, adolescents and families, April 2011

[44] ibid

[45] Emily McDool, Philip Powell, Jennifer Roberts, Karl Taylor; Journal of Health economics; The internet and children's psychological wellbeing, January 2020

[46] ibid

[47] https://www.ageuk.org.uk/our-impact/policy-research/loneliness-research-and-resources/

8.3 Clinicians should be offered specialist training in the clinical and practical aspects of delivering care online and use telecoms systems designed specifically for this purpose.

## 9 What role could digital technology play in increasing awareness, and early treatment of, mental health issues?

9.1 As already highlighted earlier in our submission, Ieso's model of innovative mental healthcare improves access, accountability, and quality of care. We treat patients whenever and wherever they choose and remove the current barriers such social stigma, travel and time off work, long waiting times and limited availability out-of-office hours. Our recovery rates already surpass all national targets.[48]

## 10 Does an increase in reliance on digital technology provide an opportunity to offer innovative treatments for mental health conditions? Is it also an opportunity to reach those who would usually be unwilling or unable to seek medical advice and support?

10.1 Digitally-enabled models of care, coupled with modern data science techniques, offer a unique opportunity to answer some of the big questions in mental health science. These include the causes and symptoms of different mental health conditions, how treatment works and how each treatment works for each individual patient.[49,50]

10.2 Utilising data, Ieso can also continuously improve the quality of the care it provides. To date, one of the major challenges to improving outcomes has been the limited information about what makes therapy work. However, using AI to measure the content of therapy sessions, and understand how words relate to how well a patient does in therapy, enables us to make treatment more effective.

10.3 Ieso is currently undertaking a study, funded by Innovate UK, to evaluate how information on patients' language, physical activity and behaviours can be used to improve the effectiveness of psychological therapies, such as CBT[51]. This will enable us to detect problems, provide treatment at an earlier stage, and better support people after treatment to prevent relapse. Furthermore, anonymised data accumulated from treatment of previous patients means we can provide a tailored package of care for each patient. The findings will also be disseminated to the wider community to inform improved mental health provision more broadly.

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[48] NHS Digital: Psychological Therapies: reports on the use of IAPT services, England August 2020 Final including reports on IAPT pilots

[49] Ewbank, M. P. *et al.* Quantifying the Association between Psychotherapy Content and Clinical Outcomes Using Deep Learning. in *JAMA Psychiatry* (2020). doi:10.1001/jamapsychiatry.2019.2664

[50] Ewbank, M. P. *et al.* Understanding the relationship between patient language and outcomes in internet-enabled cognitive behavioural therapy: A deep learning approach to automatic coding of session transcripts. *Psychother. Res.* (2020) doi:10.1080/10503307.2020.1788740

[51] https://www.iesohealth.com/en-gb/campaigns/biomarkers-study

10.4 Because our CBT therapies are conducted via digital technologies, it is possible to apply natural language processing algorithms to the data generated. These data and new analytic techniques are revealing crucial new insights about what makes a successful interaction between therapists and patients including a better understanding of which patients are likely to respond well to treatment and ways in which therapists can learn and improve to achieve better outcomes.[52,53,54]

10.5 By analysing data from over 10,000 patients we have identified seven subtypes of depression.[55] A similar study is now being undertaken by the University of Sheffield to validate the findings in a broader dataset that includes a range of treatments. A greater understanding of a patient's depressive state will help identify those most responsive to particular types of therapy and where efforts to increase engagement from patients is likely to improve outcomes or whether other options need to be explored.[56]

10.6 Digital technology also enables better engagement of under-represented group such as BAME communities and older adults. Our data shows that digital technology has the potential to afford better access to these groups and including people living with long term health conditions, those needing perinatal support and people who travel (students, ex-pats).

## 11 What can be done by Government, employers and other organisations to mitigate any negative impact than an increased reliance on digital technology will have on mental health.

11.1 It is incumbent on all digital technology companies to ensure their models are used ethically and responsibly.

11.2 Technology companies should voluntarily establish a charter which clearly sets out their societal obligations. This could include for example best practice for maintaining and supporting workforce mental health in distributed workforces.

11.3 As demand for mental health services increases, the Government should ensure there is nation- wide access to digital mental health support for all and make it available via employers and the NHS with specific programmes for those newly isolated.

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[52] Ewbank, M. P. *et al.* Quantifying the Association between Psychotherapy Content and Clinical Outcomes Using Deep Learning. in *JAMA Psychiatry* (2020). doi:10.1001/jamapsychiatry.2019.2664

[53] Catarino, A. *et al.* Demographic and clinical predictors of response to internet-enabled cognitive–behavioural therapy for depression and anxiety. *BJPsych Open* 4, 411–418 (2018)

[54] Ewbank, M. P. *et al.* Understanding the relationship between patient language and outcomes in internet-enabled cognitive behavioural therapy: A deep learning approach to automatic coding of session transcripts. *Psychother. Res.* (2020) doi:10.1080/10503307.2020.1788740.

[55] Catarino, A. *et al.* Demographic and clinical predictors of response to internet-enabled cognitive–behavioural therapy for depression and anxiety. *BJPsych Open* 4, 411–418 (2018)

[56] Catarino, A. *et al.* Refining our understanding of depressive states and state transitions in response to cognitive behavioural therapy using latent Markov modelling. *Psychol. Med.* (2020)

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