Covid-19 and the future of diagnostics

The Covid-19 pandemic rapidly accelerated many trends that have emerged over the past few years – ranging from the massive increase in digital adoption, through to the exacerbation of health inequalities.

In diagnostics, as elsewhere in health and life sciences, the pandemic has highlighted the vital need to work collaboratively. MedCity, the cluster agency for London life sciences, brought together leading academic institutions, industry and pathology service providers to form the London Testing Alliance. Supporting pillar 2 community testing both regionally and nationally, this unique collaboration allowed for challenges and opportunities to be addressed collectively, making for more efficient and effective use of resources.

Building on our work with the London Testing Alliance, we have established the Diagnostics Growth Hub in London – connecting innovators in industry to accelerate the development of impactful, novel diagnostics.

Covid-19 created heightened awareness of the positive impact made by miniaturisation and greater accessibility of diagnostics at a community level. But these trends were underway well before the pandemic – with the National Health Service (NHS) Long Term Plan in 2019 recognising the need for reform and radical investment in diagnostics services. The value of prevention and better care in the community is clear for patients, and health services also benefit as hospital resources are freed for patients requiring inpatient care.

The NHS reforms proposed by the Department of Health and Social Care's recent White Paper indicate an increased emphasis on system integration, both in terms of funding flow and commissioning, which can enable greater mainstreaming of digital and technology in services, including in vitro diagnostics (IVD). The ongoing focus on digital and AI innovation in the NHS is enabling pathways and investment for developing, implementing and building on diagnostic technology to allow a greater role for IVD at an earlier stage for patients.

These changes should be welcomed, as they allow new mechanisms for monitoring and supporting patients to keep well at home. But how do processes for evaluation and evidence for IVD technology in healthcare keep up? At MedCity, I saw many companies – particularly small and medium-sized enterprises – pivoting their capabilities to address the public health emergency. Companies whose platforms were developed for hypertension monitoring or diagnostics for cancer or diabetes were now using these platforms to address pressing needs associated with Covid-19.

The rapid pace at which new or adapted technologies expanded was not always met by how quickly they could be evaluated or approved. This has highlighted the pressing need for greater co-ordination in the evaluation for diagnostic technology, with a particular emphasis on the accessibility of annotated samples – which allow for tissue specimens to be more effectively matched to research questions which require them. Early in the pandemic, companies that were eager to contribute to Covid-19 diagnostics faltered due to challenges getting technology through the system when they could have made the greatest impact.

Some changes in the IVD industry will continue into the near future, driving a new kind of business during the later phases of the response to Covid-19 and after the pandemic. Many are ideas no-one in the industry would have predicted two years ago. Consumer and business confidence is an important factor in how the UK and international economy recovers from the pandemic, particularly for industries which suffered some of the worst impacts such as travel, tourism, hospitality and live events.

Examples include the various businesses that have grown around 'Fit to Fly' Covid-19 test certificates – making private PCR tests available for people flying abroad. These businesses are likely to further expand as international travel and tourism re-opens. Similarly, rapid testing in venues like theatres and nightclubs have been described by UK Prime Minister Boris Johnson as the "route forward" for re-opening these businesses, which are uniquely vulnerable to Covid-19.

However, the longevity of diagnostics as part of everyday life depends hugely on its acceptance by the public. Around the world there is a sizeable community who reject the need to wear a mask, or to get a vaccine – neither requiring the level of behaviour change regular testing would involve.

More impactful will be how the pandemic has driven innovation in IVD and broader diagnostics for other disease areas. There is increased initiative to improve the useability, accessibility and safety of diagnostic devices themselves. Covid-19 has demonstrated how respiratory diagnostics has lagged behind other areas, with the threat of aerosols meaning devices need cleaning to prevent the transmission – delaying and reducing the number of patients a clinic can see.

The pandemic has also demonstrated the prerogative for a revolution in how devices operate. We are seeing innovative methods of screening arise, such as the AI model from the Massachusetts Institute of Technology, able to detect asymptomatic Covid-19 through a mobile phone, recording and detecting otherwise imperceptible differences in a user's cough which indicate infection. The trajectory for diagnostic innovation is seeing technology moving into the mainstream, with a greater focus on prevention.

Our Diagnostics Growth Hub initiative has been designed to address these developments by bringing together key players in the diagnostics ecosystem. By showcasing innovative collaborations between academia and industry, diagnostics can spark new and exciting opportunities in UK life sciences. It is vital for the diagnostics industry to share this collaborative approach.

The unparalleled need for novel diagnostics has never been clearer. Working closely with systems and regulators, sharing the unique insights born from the Covid-19 experience, the diagnostics industry – and healthcare services with them – will be able to not only recover but thrive following the pandemic.

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